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INVENTARIZATION AND
COLLECTION OF LOWLAND-
VEGETABLE GERMPLASM
IN JAVA

October - December 1988

a collection of survey reports

December 1989

Internal Communication LEHRI/ATA 395

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Department of Plant Breeding

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ISN= 565 215

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INTRODUCTION

Based on statistical data collected by the Department of Agro-economy a survey was organized to all lowland kecamatan of Java having remarkable acreages of one or more of the following vegetables: garlic, shallots, hot peppers, yardlong beans, caisim, tomatoes, eggplants, cucumbers and leaf mustard. The main purpose of this survey was to collect seed samples of local strains of the above mentioned (and some other) vegetables. These seed samples should function as working collections for the crop specialists of the breeding department.

The survey was executed by 3 teams of 4 staff members of the breeding department. Each team made a trip of about 8 days to each of the three provinces, West-, Central- and East Java; In total, 9 trips were made. This internal communication contains all nine survey reports. The survey results in each paper are organized according to kabupaten.

The procedure for field-work was as follows :
about one week before visiting certain kecamatan a request for cooperation was sent to the office of the involved Dinas Pertanian Kabupaten. The collection trips always started with a visit to this office and nearly always the Kasihort (Kepala Seksi Hortikultura) and, later on, the KCD (Kepala Cabang Dinas Pertanian, Kecamatan level) accompanied the team to the vegetable growers in several villages. These growers were asked for information on promising local strains and cultural practices. Finally the farmers were asked to sell seeds samples of their vegetable selections. Thanks to the very friendly and generous cooperation of Kasihorts, KCD's, other local functionaries and the farmers during this survey, more than 1200 seed samples could be collected as well as very worthwhile information on superior local strains and cultural practices.

WEST JAVA : KABUPATEN SUBANG, INDRAMAYU,
MAJALENGKA, CIREBON & CIAMIS

SEPTEMBER 13 - 21, 1988

TEAM I : Sudjoko Sahat
Prasodjo Sudomo
Dini Djuariah
Ahmad Hanafiah Gaos

1. Kabupaten Subang

Principally three Kecamatan named Binong, Pusakanegara and Pabuaran were visited. Pagaden has been (incidentally) visited as well. Totally five places have been observed. Six crops: shallot, hot peper, chili pepper, eggplant, cucumber and yardlong bean are the dominant vegetables grown in this area. They are cultivated either as single crop or multiple cropping, i.e. shallot and hot pepper.

Of the yardlong bean CISADANE is the most populair. It is long podded (75-80 cm), light green, round, and somewhat stringless. Seeds are produced by the farmers themselves. Mostly they select the lowest pods of the plants.

Two cultivars of cucumber were found, the most promising one called SUPER and the other one SONTOLOYO. Cultivar SUPER has good performance: uniform fruit size; length about 15-20 cm; white green colour, yield about 70 qt/ha. Cultivar SONTOLOYO is shorter, thick-fruited and green-shouldered. The iteresting character of this cultivar is the many female flowers (50%). Several plants were observed, apparantly having 5 female flowers from totally ten. The yield of this cultivar is 35 qt/ha.

Peppers was the third major crop being found. Type of pepper: big fruited. Most of them are havested green. This is a local cultivar of Pagaden. There is no special name for it. Mostly farmers do not produce the seed themselves; they buy the seedlings from markets in Brebes and surroundings. Consequently the crops are not uniform. There was also found chillies peppers with erect fruit type in clusters: hybrid HONTAKA.

Shallots are grown at the north coast of the Subang area. It is cultivated as relay cropping with hot peppers. They grow shallots for one month and than interplant with peppers. After two month they harvest the shallots whereafter the peppers will remain.

The last crop found in the field was eggplant. Most of the farmers grow fresh (salad) eggplant type, they call this cultivar GELATIK. However, since its fruit colour is green with white strips it is not quite surely GELATIK but could be BOGOR. They use it for salad and this cultivar becomes popular in the area. It looks resistant to wilt disease but very susceptible to leaf insect *Epilachna* sp.

2. Kabupaten Indramayu

Five Kecamatan has been visited : Anjatan, Haurgeulis, Kertasemaya, Patrol and Karangampul. Four vegetables dominated overhere : Shallots, hot peppers, yardlong bean and eggplant; tomato, amaranth and Caisin are minor crops.

Pepper cultivar SUPER is the popular one. It covers about 3/4 of the pepper acreage. Super means "qualified pepper", its characteristic is that both leaves and fruits have a dark green colour. Medium plant height; short fruits with sharp tips; the yield being about 8 ton per hectare. Another variety (big and long) cultivar is NAMBO and a third one with small and long fruits is CEPLIK. They are found at Limpas, Kecamatan Anjatan.

Shallots are the important crop, especially west and north of Indramayu. Major variety is Bima; it has red bulb colour. Most of this crop is grown as relay planting with pepper. Another is KUNING originating from Brebes.

The biggest yardlong bean area, is west of Indramayu i.e. Karangampul and Kertasemaya. Several cultivars were observed either qualified or common local ones. Cultivar SUPER is the most popular one. It has long and light green pods. Another cultivar is PITA, it means "tape". It is long podded and green. A fourth local cultivar, called JAYAWINANGUN, has strong stems, white colour, and light green leaves; pods are light green, quite long and flat.

Eggplant was also found in many locations. It is grown as intercropping or monoculture. There are two kinds of eggplants: for eating fresh or cooked. Two cultivars for fresh vegetable are GELATIK and COWEL. They are small fruited and yellow coloured. The cooking type cultivars are KOPEK PUTIH and KOPEK HIJAU. The fruits are big and oblong; plant habitus is erect and the flowers violet or white.

Two cultivars of tomato were found: Local one "BLIMBING", it is the same as RANTI that we know already. The other is RATNA, in this place they call it "SAYUR". Apparently the tomato crop predominates in kecamatan Haurgeulis.

Two minor crops are present at Karangampul. Amaranth is the first one; it is a picking type and looks like KAKAP cultivar. The other is Caisin; unknown cultivar, apparently easy flowering.

3. Kabupaten Majalengka

Three kecamatan were visited i.e. Dawuan, Ligung and Kertajati. Total 7 crops were observed i.e. Cayenne peppers, chillies peppers, cucumber, yardong bean, eggplant, shallot and tomato.

Two cultivars of Cayenne pepper are grown predominantly in this area: SUPER and BENGKULU (KERITING) cultivar. Characteristics of SUPER are : fruit colour is dark green, nodes are purple. People get the seed from an other kecamatan (Jatiwangi) and according to farmers this cultivar originates from Taiwan. Apart from SUPER that is harvested green cultivar KERITING is harvested red. KERITING has a longer life period than SUPER. Chillies peppers is only a substitutional crop for Cayenne.

Of cucumbers, two major types are cultivated: LOCAL and SUPER. The local cultivar has short and green fruits while SUPER possesses medium sized, pointed, light green fruits. The local cultivar is earlier than SUPER (32 vs 47 days). In this area 40% is covered with LOCAL and 60% with SUPER.

There are only two local, anonymous, cultivars of yardlong bean. First type has long, green and round pods. It is the most favourable for the farmers, whereas the other has long, white and flat pods.

Four types of eggplant were found, i.e. MARUKAN (lalap = fresh), KOPEK UNGU, KOPEK HIJAU and KOPEK PUTIH. The KOPEK Cultivars have high yield potential (2 kg per plant).

Only one shallot variety has been found (MAJA DONGKOL), having red bulbs. Most of shallots are planted as relay planting with red pepper.

Tomato is a minor crop in this area. The local cultivar is RANTI, having small fruits, however, apparently it has resistance to bacterial wilt.

4. Kabupaten Cirebon

Formally four kecamatan would be visited, i.e. Waled, Ciledug, Ciwaringin and Susukan, but practically, three kecamatan were added i.e. Losari, Palimanan and Gegesik. In two kecamatan almost no vegetable crops were found the field. It was too late because water supply was limited. Two kecamatan, Waled and Ciledug were very interesting to look at, not less than 15 kinds of vegetables had been planted in one area. It is recommended to see ones more in November, because that month the big plantation will appear in the field. The commodities found in this area were shallot, Cayenne, eggplant, picking amaranth, kangkung, yardlong bean, cucumber, pulling amaranth and tomato.

All these crops were grown in one field as crop rotation, intercropping and multiple cropping. Monoculture is very rare.

Shallot is the most important crops in the area. It covers a large area of the kabupaten Cirebon. Sometimes we found about 13 ha of shallots belonging to one farmer. Four major varieties are grown. Three of them are local, i.e. Bima, Ampenan, Sumenep, and the other one is introduced from Thailand, called BANGKOK. In certain location we could find also another cultivar called Bawang Timur. Yield per hectare of local cultivar is about 7 ton while BANGKOK could reach 14 ton/ha. Unfortunately Bangkok shows degeneration, it decreases in yield from generation to generation. Consequently, after two or three generations farmers must order new imported seed. BANGKOK cultivar has characteristic big bulb, strong stem, few flowering and not many bulblets (4-5 bulblets).

Cayenne pepper is the second important crop after shallot. Several cultivars were observed, i.e. PREMBUN, TIT, IR, PARIS, SUPER and SAYUR. Cultivar PREMBUN has a short habitus, TIT is just like BENGKULU with sharp fruit-ends. Cultivar IR has a short habitus and small fruits, PREMBUN fruit's are quick turning red, compared with PARIS that is late maturing. SUPER cultivar has big fruits but dwarf habitus.

Eggplant is also found in many places. Sometimes it is a monoculture crop. Most of them belong to Kopek types, i.e. KOPEK HIJAU, KOPEK UNGU, KOPEK PUTIH, UNGU PANJANG. All of them are cooking types. The type for fresh consumption is called UNYIL. Kopek types mostly have big fruits and strong stems, while fresh type has a shrub habitus, a thin stem, white flowers and small fruits with green and white strips.

There are two types of amaranth crops, picking and pulling. Picking type has a big and strong stem and broad leaves, just like BAYAM KAKAP cultivar. Pulling type has thin stem and narrow-sharp leaves.

Kangkung is cultivated in a small area. Three cultivars were found. First one is cultivar BANDUNG, it has narrow leaves, small white stem and white flowers. The second is cultivar LOSARI, violet flowers and very thin violet stems whereas a third cultivar has blue flowers and is called CIUYAH. This cultivar can be either "Kangkung Darat or Kangkung Air".

Most of the kacang panjang cultivated in this area has light coloured pods; it is a typical local cultivar in the Cirebon area. Length of pods is about 35 cm. The pods are harvested half mature, when the swollen seeds can be distinguished. Mature seeds are red coloured.

Two major cultivars of cucumber are local one SONTOLOYO and the promising one SUPER. There are several variations of these two types. The local cultivar dominates the area. In one location about 12 hectare was covered by this local one.

It has short and green fruits (10 cm). SUPER cultivar is only for Jakarta market. Some of the plants had 50% female flowers and many have two female flowers in one cluster. According to farmers in kecamatan Gegecik, SUPER cultivar originates from Taiwan (hybrid). The price of the original seed is very high, Rp. 10/seed. However, after three or four generations became Rp. 4.000 per 20 grams.

Tomato is a minor crop in the Cirebon area. Two major cultivars are cultivated, the local one KEMIR and promising variety RATNA.

5. Kabupaten Ciamis

The most interesting crop diversification was found in Kabupaten Ciamis. Of the three Kecamatan (Padaherang, Lakbok and Ciamis) not less than 14 crops were observed, i.e. tomato, shallot, cayenne pepper, chilli pepper, picking amaranth, pulling amaranth, eggplant, cucumber, yardlong bean, caisin, lima bean and string bean. There are two field types for vegetables cultivation, paddy field in dry season only (limited water supply) and upland (that can be cultivated the year round). Most of the southern part of Ciamis (Padaherang and Lakbok) is flooded area, so in the dry season some irrigation water is available.

Tomato is an important crop at Kabupaten Ciamis. Two methods of cultivation are in use; direct seeding (Ciamis area) and transplanting (Lakbok and Padaherang). There are several cultivars of tomato found at the place i.e. INTAN, RATNA, GONDOL PUTIH, KEMIR, APEL. They don't put sticks to the plants. They lie down on the ground. The big problem is the fruit borer (*Spodoptera exigua*).

Shallots are an important crop in southern part of Ciamis. Apparently they grow two cultivars: Bangkok and BIMA. Here they are only grown in monoculture.

Most of the Cayenne pepper is monoculture cultivation. Several cultivars were found, i.e. CIANJUR (CIPANAS), INDRAGIRI, BENGKULU, SUPER. Two kinds of product are harvested: green and red fruits. Most of local varieties have big fruits; Bengkulu has small fruits. Bengkulu is grown at Desa Kelapasawit, Kecamatan Lakbok. In certain areas peppers are grown under orange trees.

Three kinds of chilli peppers were found, i.e. RAWIT HIJAU, RAWIT PUTIH, RAWIT GENDUT. Very seldom we found chilli pepper in monocropping culture. Mostly it was planted as relay cropping, intercropping, even sometimes under citrus trees. At Desa Benteng, Ciamis, a vigorous cultivar was found: erect, height about 1.5 m, big green fruits.

There are two kinds of amaranth, picking and pulling. The picking amaranth is mostly cultivated as intercropping

while the pulling one is grown as monoculture. Direct seeding is done especially at Benteng, Ciamis. According to the farmers there are no special names for the cultivars, however, one of them looked like cultivar KAKAP.

Another important crop is eggplant. Most of the cultivars belong to KOPEK type, with big and long oval fruits. The other type is called KELAPA, with big round fruits. There are two eggplant types derived from GELATIK cultivar (round, small, green stripes, fresh fruit consumption). First type is called MARUKAN, it performs as GELATIK, however the fruit size is much bigger than GELATIK. The second is big fruited and long oval-shaped; it is called JADAH.

Cucumbers at Kabupaten Ciamis are quite different compared to other Kabupaten. Mostly the fruits are small, sometimes being produced in three-fold clusters. This is cultivar KARAE.

Yardlong bean cultivars varied in pod colour: white, green and purple. Cultivars are named as : USUS PUTIH, GAJIH, SUPER, other ones are nameless. One of the cultivars has purple stems and pods. It looked free of virus infection, while the other type (green one) beside it, was full of virus. An other cultivar had dark green pods.

Caisin is also present in this area. It is grown as intercrop or in monoculture. The cultivar is a late flowering-type a typical characteristic of this cultivar is the petiole-colour.

Two types of kangkung were also found : with purple and white stems. The last one is called SUTERA. They are cultivated as intercrop.

Two types of Koro are PEDDA (young pods has a light colour with red strip; flower colour is violet) and JELER (young pods has a light-green color; flowers are white).

The last crop found was snap beans (climbing Phaseolus vulgaris). It has ligh green flat pods. The performance looks like cultivar SURAKARTA.

WEST JAVA : KABUPATEN PURWAKARTA, KRAWANG, BEKASI,
BOGOR & DKI JAKARTA

SEPTEMBER 21 - 29, 1988

TEAM II : Anggoro Hadi Permadi
Etti Purwati
Sartono Putrasamedja
Suryadi

1. Introduction

The locations surveyed were (1) kecamatan lower than 400m above sea level, (2) kecamatan with more than 50 ha of one important vegetable crop. Based on these criteria, East Java and DKI Jakarta were divided into three regions, each was surveyed by a different team, i.e. team I, II and III. Each survey team consisted predominantly of crop specialists.

Team II surveyed 4 kabupaten of West Java and DKI Jakarta, i.e. :

- (1) Kabupaten Purwakarta, kecamatan Campaka
- (2) " Karawang , kecamatan : Pangkalan, Teluk -
jambe, Cikampek, Kelari,
Karawang and Rengasdengklok.
- (3) " Bekasi , kecamatan Serang, Lemahabang,
Tambun, Babelan and
Cabangbungin.
- (4) " Bogor , kecamatan Cibungbulang,
Jonggol, Cileungsi, Sawangan,
Parung and Cigudeg
- (5) DKI Jakarta Raya , kecamatan Pasar Minggu, Pasar
Rebo, Jatinegara, Kebon Jeruk,
Cengkareng and Penjaringan.

The survey was conducted in the end of dry season. Therefore, hundreds of hectares of land in the visited areas were bare land. Very few areas had irrigation and especially in these areas lowland vegetables were grown. Those grown along the river grew better than those grown with less watering. The dominant vegetables grown in the visited areas were : cucumber, yardlong bean, pepper, kangkung and caisim, the others were a minority.

During the survey locations to be visited were sometimes changed based on time limit or on information of the Dipertan such as in Kerawang the team skipped one kecamatan, i.e. Cikampek. In Bogor, Cigudeg was not visited, it was changed by another kecamatan, i.e. Semplek. In Jakarta vegetables were grown especially along the river. Those grown far from the river without sufficient irrigation grew worse.

Table 1. List of kecamatan visited with vegetables found during the survey.

Kabupaten/Kecamatan	YLB	CUC	PRP	C.PEP	TOM	EGP	AMR	KKG	CAI	CHI	LET	KAR	CWP	RAK/GND
1. Purwakarta														
1. Campaka	++m	++s					†							
2. Karawang														
1. Pangkalan	††	††	†											
2. Karawang						†				†	†			
3. Kelari	††													
4. Rengasdengklok	†	†	†	†		†								
3. Bekasi														
1. Babelan							††	††	††				†	
2. Tambun	††	††	†											
3. Cabaqbungin	††				††									
4. Lemahabang			††				†		†	†				
5. Serang			††											
4. Jakarta														
1. Penjaringan		†					†	†	†		†			†
2. Cengkareng					†				†					
3. Kebon Jeruk	†	†				†		†	†			†		†
4. Jatinegara							†	†	†		†			†
5. Cakung	†						†	†	†		†/†			
6. Ps. Rebo	†	†				†		†						
7. Ps. Minggu	†	†			†		†							
5. Bogor														
1. Cibungbulang		†	†		†	†								
2. Semplek														
3. Sawangan	††	†												
4. Cileungsi	†	†						†						
5. Jonggol			†											

Legend :

- †† = dominan
- † = present
- m = mixed

Crop abbreviation :

- YLB = Yardlong bean
- CUC = Cucumber
- PRP = Pepper
- CPEP = Chilli Pepper
- TOM = Tomato
- EGP = Eggplant
- AMR = Amaranth
- KKG = Kangkung
- CAI = Coisin
- CHI = Chinese Cabbag
- LET = Lettuce
- KAR = Kaelan
- CWP = Cowpeas
- RAK = Bw. Rakkyo
- GND = Bawang Ganda

2. Kabupaten Purwakarta; 21 September

Guidance was given by Mr. Dullah HS, Kasi Hortikultura Dipertan Purwakarta, and Mr. Ae Hidayat, Head BPP Cilandak. Due to dry season vegetable plantation was sporadic, i.e. only in fields where water was available. The main vegetables in kecamatan Campaka was :

- (1) Yardlong bean, with local name of : Baleor, a green, small and short (50-60 cm) fruited cultivar. Super and Telurasin were other names for popular cultivars having longer (\pm 80 cm) and bigger fruit with bluish green colour. Still other names: Laden and Bakor. The population was mixed. Harvesting was done every 2-3 days, 18-20 x harvests, yield of 26 ton/ha.
- (2) Cucumber, with local name of Super, a superior quality cucumber, greenish white with dark green shoulder, long (\pm 20 cm) and slender. Crop harvest started 32 days after planting (dap) for 7-8 times harvests 1/2 l of seed for 1000 m², yielded 1250 kg fruits. They used to plant non-stick type called Bonteng Goler, but nowadays Bonteng Turus or Super was popular. The seed was locally produced and Mr. Ebot was the most well-known seed producer in the area.
- (3) Bayam cabut, was planted in a small scale. They started to harvest after 20 days from direct sowing.
- (4) Non-heading chinese cabbage. A very small area was planted with this crop. It had a flat white petiole, Granat type leaves but non-heading and was able to produce flower. This was a mixed population. No local name, it could be Caigran.

2. Kabupaten Krawang; 22-23 September

Very large area was left bare, i.e. after rice. Vegetables were planted sporadically where water was available. Actually vegetables could be grown right after rice harvest where the soil was still wet. But only few farmers did it.

- (1) Yardlong bean is one of the dominant crops in Telukjambe but the crop was almost over when the team was there. Super was a popular local cultivar. The seed came from seed shop(s?). According to the merchants in the market, all kinds of YLB with superior quality was called "Super", i.e. long (> 80 cm), whitish/bluishgreen, harvested in the right time so that the pod is not undulated.
- (2) Cucumber was another dominant crop. Super was a popular cultivar having the same characteristics as Super from Purwakarta. It possessed high percentage of female flower. Seed came from seed shop. Another type was Timun Goler with shorter (10-15 cm)

but bigger diameter (5-6 cm). This type was found in Rengasdengklok.

- (3) Pepper population was a mixed of long & medium fruit types plus some purple fruited type. The seed came from seed shops. No local name of this cultivar. Thrips seriously attacked the crop. This crop was found in Telukjambe and Rengasdengklok.
- (4) Caisim, was found in Kec. Karawang along Citarum river, planted in beds, 3-4 rows/bed, with 20x20 cm plant distance. Percentage of bolting was high. Seed was produced by the farmer himself without selection. The non-bolting plants were sold and the bolting ones were used for seed production.(!)
- (5) Eggplant was also found along Citarum river. Small, round, white and purple colour were mix together. The crops were almost over.
- (6) Chili pepper, was found in Rengasdengklok. The crop grew vigorous and produced abundant of flowers but almost without fruit, physiological problem.
- (7) Non-heading chinese cabbage was found in Kec. Karawang along Citarum river. The leaf of this crop looked like cultivar Granat with white flat petiole. No head was formed. It produced flower + 15-20% of the population.

3. Kabupaten Bekasi; 24-25 September

Guidance was given by Mr. Sukardi, Kasi Hortikultura Dipertan Bekasi. Again large areas of nice fields were empty. Vegetable were grown sporadically in this rice area.

- (1) Caisim was grown intensively in Babelan and Lemahabang where water was available. The populations were easy to bolt. Plant distance was 10x20 cm. The crop was harvested 17-25 d.a.p. when the crop had 6-11 leaves. Fourty gram of seed yielded 4 kw of crop. No cultivar name. Farmers produced their own seed. Bolting was + 15-40%.
- (2) Kangkung darat, was also grown intensively in Babelan. The crop was harvested by pulling the whole plant including roots. With this way of harvesting the price of the crop could reach twice the price of the same crop if it were harvested by cutting. Harvest could be done 4 weeks after planting. They called it Kangkung Super. Seed was obtained/bought from seed shops.
- (3) Amaranth of pulling type was grown intensively in Babelan the same place as Caisim & Kangkung darat. They called it Bayam cabut/putih. Harvest was done 3-4 weeks after sowing. Farmer produced their own seeds. This crop was also found in Lemahabang. Other type was red amaranth; purplish red leaf and stem, used as pulling type.

- (4) Pepper was found in Tambun, Cabangbungin, Lemahabang. Thrips was a serious pest. Populations in these areas were mixed up. Local names were Paris Minyak, with light green young fruit colour and Paris Batu with dark green fruit colour. Another cultivar was Cabe Keriting.
- (5) Tomato, was found in Kec. Tembelang and Cabangbungin. The types grown were determinate type: Intan, Kemir and tomat susu, and indeterminate type : Gondol Hijau and Gondol Putih. Kemir was still a popular type it had small & acidic tasted fruit suitable for "sayur" with green shoulder.
- (6) Non-heading chinese cabbage was grown in small scale in Lemahabang. Type and shape of leaf looked like Chinese cabbage, non-heading and palegreen colour. Very uniform, could be hybrid, originated from Taiwan. They called it Petsai Rintik, plant distance 30 x 30 cm, harvested 6 weeks after sowing or 4 weeks after planting. Seed was bought from Pasar Tambun.
- (7) Sawi Asinan, was grown in small scale in Lemahabang. It was mustard, and used for "asinan", a kind of sauerkraut. Planted on soil bed of 1.20 m wide and 20 cm high, with plant distance of 30 x 30 cm. Harvested 6 weeks after planting.
- (8) Yardlong Bean, was found in Babelan, it was a mixed population between whitish and greenish pod colour with purple flower. Pod \pm 60 cm long. In Cabangbungin cultivar Super putih, originating from Karawang, was grown. Other cultivar Gajih with short (40 cm) & white pod was also grown. The pod is undulated and not popular, but it seemed to possess more than 2 pods per cluster, could become source of increasing number of pod/cluster in YLB improvement.
- (9) Cucumber, found in Cabangbungin, called Super and Batang, looked the same as those from Karawang or Purwakarta. The seed came from Pasar Tambun.

4. DKI Jakarta; 26-27 September

Vegetable growing in the city was mainly leafy vegetables such as caisim, kangkung darat, lettuce, Amaranth & Kaelan, while fruit vegetables such as cucumber, pepper, tomato, yardlong bean and eggplant are planted in the edge of Jakarta.

- (1) Caisim was grown in \pm 1.25 m wide bed, 18x20 cm plant distance, harvested 25-30 d.a.p. Bolting percentage was different from area to area, i.e. 50% in Kamal/Penjaringan, 20 % in Jatinegara and 2,5 % in Pulogadung (20 days after planting). Late bolting population was preferably. Seed from Cipanas & Sukabumi was late bolting but too much fibre (!).

- Farmers preferred to buy seed from seed shop rather than produce themselves.
- (2) Kangkung darat, was grown in bed as caisim, 5 x 10 cm plant distance they called it Kangkung cabut. Some cultivar names were : Cinde, Bangkok and Sutera . "Bangkok" has wide leaf. They prefer narrow and pointed leaf shape. Harvest was by pulling. Kangkung darat has a better price than kangkung air/rawa/potong because of bad image of kangkung air as it was grown in dirty water. Kangkung darat was harvested 25 d.a.p.
 - (3) Lettuce. Based on the leaf shape, these were two types cultivated i.e. (1) oblate, called Slada Keriting and (2) elongate, called Nyumek, with yellowish green colour. Seed produced by himself. Planted in bed as Caisim with 10 x 18cm plant distance, harvested 25-30 days after planting with 10-14 days in nursery. This crop was grown i.e. Penjaringan and Cakung.
 - (4) Amaranth was a very common vegetable in Jakarta. The cultivar grown was called Bayam tabur or Bayam cabut. Planted in beds, broadcast the seeds on the bed and harvested 21-25 days nursery. This crop was grown i.e. Panjaringan and Cakung.
 - (5) Kaelan was found in Kebonjeruk. Planted in rows of \pm 70 cm between rows and \pm 50 cm in the row.
 - (6) Rakkyo (Allium chinense) was found in Penjaringan and Kebonjeruk. This crop was locally called Rokio or Bawang Cung used for "cap-cai".
 - (7) Cucumber, was grown in Penjaringan, Pasar Rebo and Pasarminggu. Cultivar names were : Super or Timun Batang. The shape, size and colour of fruit were identical with Super from Karawang & Purwakarta or Bekasi. Timun Acar, when Timun batang or Super is harvested in very young stage when the size was still small. Timun Buku in Pasar Rebo was identical with timun goler from Karawang, shorter but bigger in diameter than timun Batang. The fruit was harvested 35-38 days after planting. The fruit colour was more greenish than Super Timun acar.
 - (8) Yardlong bean. In Cengkareng, 3 types were known, i.e. 1) Bangkok: bluish green identic with telur asin or Super, 2) Usus Hijau and 3) Kacang Pendek Sipo. This type was called Hipuk in Pasarminggu, might be Bushsitao, short pod (30 cm). Gendon or Gajih are special names for white and long pod YLB in Pasar Rebo. They prefer green colour and long (> 80cm) pod. This green and long pod cultivar was also called Ijoteles In Cilandak Timur/Pasarminggu, Usus putih was popular. The pod length was up to 1m, the production was higher than Usus hijau.
 - (9) Tomato, found in cengkareng. The cultivar grown was Intan-8. However, about 20% of the population wilted. The farmer ever produce 9 ton/2000 m² or about 45 t/ha.

6. Kabupaten Bogor; 28-29 September

Guidance was given by Mr. Momod, Sayuran Division of Dipertan Kab. Bogor.

- (1) Yardlong Bean. In Sawangan Baru commonly they grew cultivar Tali_Otot a long, bluish green pod, but rather flat, many of the plants with pod more than 1m. when sufficient water is available. The other type was Mr. Romli. The owner told us that in the past farmer from Bekasi took seed from this area and developed this cultivar in Bekasi. In Cileungsi the YLB population was mix together : short and white pod mixed with medium long and green pod. Due to the expensive price of the stick, some farmers grew special type without stick and they called this cultivar Kacang_Belang, white and short pod. It had longer storage ability than the green type due to thicker skin. The stem was cut when the plant has 5-6 leaves to stimulate lateral branches to grow.
- (2) Cucumber. Timun_Turus was very common name rather than Super. The shape and colour of the fruit were much the same as Super from Karawang, Bekasi etc. Timun_Knoe was found in Jatisari/Cileungsi; Young fruit was green and turn white when mature, the fruit was 20-25 cm and fat; harvest: 40 d.a.p. Timun_Goler or Ampar was short fruited type, 5-10 cm, square, uniform colour.
- (3) Eggplant - Terong_Glatik, small fruited type with different colours (= purple, darkgreen with white dots) in Semplak. Other types were Kopek_Unqu and Glatik, in Cibungbulan.
- (4) Tomato - Kemir was grown instead of Intan, in Cibungbulan, because the market prefer Kemir. It was a determinate type, whitish fruit with green shoulder, orange when ripe, small size (0 2 1/2 cm), + 5 flowers /cluster, wide leaf with 2 pair leaves. Acid taste, suitable for sayur rether than Intan which has sweeter taste, Mr. To'i in Nanggewer, close to Bogor, grew two cultivars : "Mutiaras" and Garut. He obtained the seed from Garut. "Mutiaras" with 2-3 locules, the fruit colour turned white due to exposure to direct sunlight, determinate type, oblate fruit. "Garut" looked like Gondol Putih, indeterminate type. Very few wilting plants.

Table 2. LIST OF SEEDS OBTAINED BY SURVEY TEAM II
(WEST JAVA)

No. of introduction	Seed weight (gr)	Sources of seed	Name of cultivar and Remarks
I. Yardlong beans (<i>Vigna sesquipedalis</i>)			
1. LV 1156	155	Cikopo/Purwakarta	Telur asin
2. 1160	15	Cikopo/Purwakarta	Local
3. 1162	155	Kabalen/Kerawang	Local
4. 1180	95	Babelan/Bekasi	Local
5. 1187	15	Tambun/Bekasi	Local
6. 1206	75	Kebon Jeruk/DKI	Local
7. 1208	25	Pasar Minggu/DKI	Pod's colour:Green
8. 1210	50	Pasar Minggu/DKI	-"- :White
9. 1214	1	Pasar Minggu/DKI	-"- :Green
10. 1215	45	Pasar Rebo/DKI	Pod's colour
11. 1216	95	Cakung/DKI	Local
12. 1218	95	Ciampea/Bogor	Pod's colour:Green
13. 1219	95	Ciampea/Bogor	-"- :White
14. 1220	40	Cibungbulang/Bogor	-"- :White
15. 1229	50	Semplak/Bogor	Gajih
16. 1236	35	Sawangan/Bogor	Local
17. 1239	45	Sawangan/Bogor	Tali otot type Pod's colour:White Greenish.
18. 1243	25	Parung/Bogor	Local
19. 1245	45	Cileungsi/Bogor	Seed's colour: stripes
20. 1246	45	Cileungsi/Bogor	Turus type Pod's colour:Green
II. Cucumber (<i>Cucumis sativus</i>)			
1. LV 1157	90	Cikopo/Purwakarta	Turus type
2. 1164	100	Rengasdengklok/ Karawang	Local
3. 1171	115	-"-	Local
4. 1172	30	Babelan/Bekasi	Local
5. 1190	75	Tambun/Bekasi	Local
6. 1204	15	Kebon Jeruk/DKI	Local
7. 1209	15	Pasar Rebo/DKI	Batang type
8. 1211	2	Pasar Minggu/DKI	Batang type
9. 1212	25	Cakung/DKI	Local
10. 1223	95	Ciampea/Bogor	Ampar type
11. 1224	90	Ciampea/Bogor	Turus type
12. 1227	25	Semplak/Bogor	Turus type
13. 1234	20	Cibungbulang/Bogor	Turus type
14. 1241	15	Sawangan/Bogor	Local
15. 1243	15	Parung/Bogor	Local
16. 1244	15	Cileungsi/Bogor	Turus type

No. of introduction	Seeds weight (gr)	Sources of seed	Name of cultivar and Remarks
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III. Egg plant (*Solanum melongena*)

1. LV 1167	95	Karawang	Local
2. 1179	25	Babelan/Bekasi	Local
3. 1201	25	Penjarangan/DKI	Local
4. 1207	15	Pasar Rebo/DKI	Gelatik Greenish
5. 1226	15	Semplak/Bogor	Local
6. 1233	2	Cibungbulang/Bogor	Kopek-Purple
7. 1238	15	Ciampea/Bogor	Local
8. 1240	15	Sawangan/Bogor	Purple-oval

IV. Tomato (*Lycopersicum esculentum*)

1. LV 1176	15	Babelan/Bekasi	Taiwan type
2. 1181	15	Babelan/Bekasi	Local
3. 1184	0,2	Cibungbulang/Bogor	Local
4. 1197	3	Cengkareng/DKI	Intan
5. 1217	25	Babelan/Bekasi	Kemir
6. 1222	3	Ciampea/Bogor	Local
7. 1225	1	Semplak/Bogor	Garut-Jabar
8. 1232	2	Cibungbulang/Bogor	Kemir

V. Kangkung (*Impomea reptans*)-pulling type

1. LV 1165	255	Karawang	Local
2. 1177	75	Penggilingan tengah /Bekasi	Local
3. 1138	85	Babelan/Bekasi	Local
4. 1185	115	Tambun/Bekasi	Local
5. 1194	205	Tambun/Bekasi	Local
6. 1198	75	Penjarangan/DKI	Local
7. 1203	45	Kebon Jeruk/DKI	Local

VI. Pepper (*Capsicum annum*)

1. LV 1163	5	Rengasdengklok/ Karawang	Local
2. 1169	105	Karawang	Local
3. 1170	95	Karawang	Seed's from Kuningan/Jabar
4. 1174	15	Babelan/Bekasi	Local
5. 1175	0.5	Babelan/Bekasi	Local
6. 1186	25	Bojongsalam/Bekasi	Local
7. 1188	0.5	Serang/Bekasi	Local
8. 1189	0.5	Tanah Abang/Bekasi	Local
9. 1195	0.5	Serang/Bekasi	From Taiwan
10. 1213	2	Pasar Minggu/DKI	Local
11. 1231	2	Cibungbulang/Bogor	Local
12. 1235	2	Cibungbulang/Bogor	Local
13. 1247	1	Jonggol/Bogor	From Denmark
14. 1248	0.5	Jonggol/Bogor	Local
15. 1249	0.5	Jonggol/Bogor	Local

No. of introduction	Seeds weight (gr)	Sources of seed	Name of cultivar and Remarks	
16.	1250	0.5	Jonggol/Bogor	Local
17.	1251	0.5	Jonggol/Bogor	Local
18.	1252	45	Jonggol/Bogor	Local
19.	1253	0.5	Jonggol/Bogor	Local
VII. Amaranth (<u>Amaranthus tricolor</u>) - pulling type				
1.	LV 1159	85	Cikopo/Purwakarta	Local
2.	1166	135	Karawang	Leaf's colour:White
3.	1182	25	Babelan/Bekasi	-"- :White
4.	1183	235	Babelan/Bekasi	-"- :Radish
5.	1191	115	Tambun/Bekasi	Local
6.	1196	40	Penjaringan/DKI	Local
7.	1205	45	Kebon Jeruk/DKI	Local
8.	1221	95	Ciampea/Bogor	Leaf's colour:White
9.	1228	45	Semplak/Bogor	-"- :White
10.	1237	35	Sawangan/Bogor	-"- :White
VIII. Chinese cabbage (<u>Brassica pekinensis</u>)				
1.	LV 1161	2	Kebalen/Karawang	Local
2.	1192	5	Tambun/Bekasi	Leaf type : rintik (savoy cabbage)
IX. Sawi kembang or Caisim (<u>Brassica parachinensis</u>)				
1.	LV 1168	85	Karawang	Local
2.	1173	5	Penggilingan tengah/Bekasi	Local
3.	1193	5	Tambun/Bekasi	Local
4.	1199	35	Cengkareng/DKI	Local
5.	1202	35	Penjaringan	Local
X. Pak choi (<u>Brassica chinensis</u>)				
1.	LV 1200	35	Cengkareng/DKI	Local
XI. Winged beans/Kecipir (<u>Psophocarpus tetragonolobus</u>)				
1.	LV 1158	50	Cikopo/Purwakarta	
XII. Snap beans (<u>Phaseolus vulgaris</u>)				
1.	LV 1230	25	Semplak/Bogor	Local

WEST JAVA : KABUPATEN LEBAK, PANDEGLAND,
SERANG & TANGGERANG

SEPTEMBER 25 - OCTOBER 2, 1988

TEAM III : Q.P. v.d. Meer
Rachmat Kartapradja
Yenni Kusandriani
Uun Sumpena

1. General

A survey for collection of knowledge and seeds of superior local vegetable strains was organized in September-October-November 1988. It covers the most important vegetable growing kecamatan of whole lowland-Java (< 400 m).

All crop specialists and some discipline specialists of the breeding department are involved in order to increase their personal knowledge of the variability and cultural practices in the field of their own crop/discipline.

Team III visited Lebak, Pandeglang, Serang and Tangerang. Excellent guidance was given in all these regencies by the Heads of the Horticulture Sections of the Dinas Pertanian, by functionaries of other institutions (BPP, KCD, PPL) and by local authorities like kepala desa and key farmers.

The time for collection appeared to be very favourable because in most locations only limited acreages of crops were grown so that most farmers had seed in stock. On the contrary mostly no seeds were available when crops were grown in the field.

In general, farmers were not aware of selection from a multitude of varieties but on the other hand they seem to know that positive massselection is required for maintaining or improving a local selection.

An idea of superior local selections could be formed from discussion with farmers, with local agricultural functionaries and from field observations.

Totally 135 accessions could be collected from farmers and seed shops. A number of them is considered and indicated as more or less superior local strains as relevelated at the end of some following paragraphs (2.1, 3.1, 4.1, 5).

2. Kabupaten Lebak; 26 September

2.1. Local strains

Guidance was mainly given by P. Muchsin, Kasi Hort. D. Pert. Kab. and P Jalim, Kepala BPP Kab.

In kecamatan Rangkasbitung the cucumber variety Super, originating from a seed shop in Bogor, was found, showing relatively many female flowers and light green fruits of 15-20 cm; yield about 8 tons/ha.

Of egg-plant the variety Kopek Paris (seeds from Bogor) was grown, having rather long light violet fruits; prices being very low. Harvesting starts after 2 months and can last 4 months.

Yardlong bean was of an intermediate length and of the hijau and putih type; yield about 20 tons/ha.

Tomato Intan had been tried but it failed. Better results were obtained with Rampay (compact clusters).

Cucumber Super LV 1043, yardlong bean hijau LV 1041 and egg-plant Kopek Paris LV 1044 are considered as superior accessions.

2.2. Cultural practices

The farmers prepare the land as follows: Soil was cultivated two times with heaving, then levelling and bedding. They also handweed the field. Plant spaces varied between rows from 25 cm to 50 cm, and 50 cm in line, depending upon the commodities. Manure was given from 10 ton to 15 ton per hectare with additional fertilizer as Urea and TSP, of each 400 kg per hectare, which is given after planting. Furrow irrigation was done in three days intervals. Pest and diseases controlled by using pesticide as Tokuthion and Furadan in two treatments a week.

3. Kabupaten Pandeglang; 26 and 27 September

3.1. Local strains

Main guidance by P. Ajab Natapura, Kasi Hort. D.P. Kab. and P. Iyo Daryana, Kasi Buah-buahan dan Sayuran.

In desa Karyasari, near Pandeglang, two interesting types of cucumber were found: Banteng turus (= on sticks; Super ?) and Banteng depa (prostrate) B.turus is light green, rather hard (good for transport) and high yielding; up to 40 ton/ha. B. depa is medium green and has a superior organoleptic quality, but is lower in yield. Yardlong beans were here predominantly dark green. From a key-farmer (P. Achmad) in Pegadungan (Cadasari) we obtained seeds of bayam, tomato, kangkung, cucumber, hot

peppers and yardlong bean. Kangkung is grown as a ratoon crop in sunken beds. It suffers more from insects if no other crops are around. Pepper crops in Cadasari were remarkably healthy and productive (10-15 tons/ha), but the fruits were heterogenous : from keriting (= Bengkulu) till besar (= Bongas type).

In Menes egg-plant Glatik Ungu (short, violet) and tomat Rampay were found and in Banjar egg-plant Kopek Ungu (slender, violet).

In Panimpang we could buy local seeds of yardlong bean, bayam and snap bean.

From the pasar in Pandeglang big pepper fruits of the bongas type were collected.

Cucumber Banteng turus LV 1047 and LV 1057, cuc. Banteng depa LV 1058, hot peppers Bongas LV 1063-LV1073-LV1074, yardlong bean Karyasari LV 1049, egg-plant Kopek Ungu LV 1066, egg-plant Glatik Ungu LV 1050, Tomat Rampay LV 1051 and Bayam Pegadungan LV 1056 are considered as superior accessions.

3.2. Cultural practices

The farmers used to cultivate land two times and then levelling and bedding. Weed also controled by hand. Plant spaces varied between 20cm to 50cm between rows and 30 cm to 60 cm in row, depend upon the commodity. Plant space for kangkung is 10 cm x 10 cm, while amaranth is spread over the beds.

Manure of 10 ton to 15 ton is given to the crop except for kangkung and amaranth 2 ton per hectare, and given before planting. Urea and TSP of each 400 kg per ha are also given for pepper, cucumber, yardlong bean and eggplant. 200 kg/ha of both Urea and TSP are given to kangkung and Amaranth. Furrow irrigation is done for watering plants.

The farmers has been familiar in using pesticide to controll pests and diseases. Pesticides used are Lannate, Curacron, Hostathion and Antracol, given with 2 times a week interval.

4. Kabupaten Serang; 28 and 29 September

4.1. Local strains

Main Guidance by P. Atjang Nurhasen, Kasi Hort. D.P. Kab. and B. Yati, Kasi Sayuran.

In Kramatwatu shallots are grown in the wet season-on raised beds with padi in the ditches. Plant material for the consumption crop is stored for 7 months and that for planting material only for 3 months. Varieties Kering (= Sumenep ?), Kuningan and Medan.

In desa Kepuh, Ciwandan, near Anyer, field observations could be done on hot peppers, yardlong bean and egg-plants. The peppers were rather big (Bongas type) and healthy; originate from Cirebon, 5 years ago. Of yardlong beans different types are grown; hijau, putih, merah.

In Pabuaran mixtures of three pepper types are grown: Belut (rather slender and pointed, relatively drought resistant), Baros (thick and less pointed) and Banteng (like Keriting); yields reach 8 to 9 ton/ha. Of yardlong bean mixtures of hijau and putih are grown; hijau is better transportable and putih easier to cook. Cucumbers were of the turus type.

In Serang seed samples could be bought of local strains, but also many strains of Tasikmalaya were available as well as seeds from Benih Prima.

In Walantaka a long-violet fruited egg-plant type was found.

In Cikeusal cucumber turus was grown having light green fruits. Of yardlong bean a mixture of hijau-putih-merah was grown. The peppers consisted of a mixture of Keriting, Belut and Baros.

In Ketupang a spontaneous type of bushy tao yardlong bean was found growing in a cowpea crop, obviously generated by spontaneous crosses. Seeds could be collected.

In Baros a large area of hot peppers was found of the Baros type, but here it is called Bebelan. Also tomatoes were grown; we received samples of Kemir and Ramay.

In Pamayaran extra long yard long beans (putih) were observed.

Cabe Kepuh LV 1076 and LV 1080, cabe Belut LV 1082, cabe Baros LV 1083, cabe Bebelan LV 1113, cucumber Pabuaran LV 1084, cucumber Walantaka LV 1100, egg-plant Kelapa LV 1087, sawi LV 1091, yardlong bean bushy tao LV 1103, yardlong bean putih Pamayaran LV 1110, yardlong bean Pabuaran LV 1086, tomat Apel LV 1092, tomat Rampay LV 1102 and tomat Kemir LV 1112 are considered as superior accessions.

4.2. cultural practices

Soil preparation/cultivation is usually done two times followed by levelling and bedding. The farmers are used to handweed the field. Plant spaces varied from 20 cm to 50 cm between rows and 25 cm to 50 cm in row, depending upon the commodity, except spreading on bed for amaranth and 10cm x 10cm for shallot. Stable manure given from no manure for shallot to 10-15 ton a hectare; depend on the commodity. Fertilization using Urea, TSP, NPK and KCl are also familiar. They also use spray fertilization using Surplus, Gandasil, even Atonic they consider as fertilization.

Pesticides used are Tokuthion Kelthane, Curacron, Difolatan, Decis, Dursban, Furadan and also Basudin.

5. Kabupaten Tangerang; 30 September and 1 October

The main guide in Tangerang was P. Amsir, Kasi Hort. D.P. Kab.

In Teluknaga ciasim from imported seeds can be ratooned, local caisim can't. In Cenglong several farmers are specialized on leafy vegetables in pekarangan: kailan, caisim, bayam. Here also extra long light green yardlong beans are grown (P. Arba).

In the pasar of Tangerang a large collection of local seeds could be bought. Also local seeds were bought in Ciputat.

In Ciputat the 3 BN company was visited which specializes in production of vegetables for super markets in Jakarta, using a sprinkling system and realizing very high yield of e.g. kangkung. Other crops: egg-plant, amaranthus, paksoi, okra, yardlong bean Hawaii (dark green and short) and local and Japanese cucumbers. We could receive a number of seed samples.

In Sepatan sawi jabung (*Brassica juncea*) is an important crop as well as yardlong bean. Here also the growing of shallots (e.g. Kuning) is tried out, using the bedding system; from Sepatan the transport to Jakarta is much cheaper.

A collection of local seeds could be bought from P. Agus, ketua kelompok sayuran, in desa Kayu Agung. P. Agus supposes correlation between thick necks and bitterness of cucumbers. Of yardlong bean a light green and a dark green type are grown.

In Mauk (desa Gintung) a combination of sawi jabung and bawang kucai (*A. tuberosum*) is very popular. The sawi seed is grown locally. A plot of about 2 ha was very intensively grown with: sawi, bayam (red and green mixture), bawang daun (*A. fistulosum*) and bawang kucai. The sawi obviously suffered considerably from virus; because of year round growing?. Bayam merah has a higher price than the green one. Seed of bayam and sawi were obtained (P. Sanar).

In desa Sukadiri a collection of seeds was generously given by P. Sakih ketua kelompok petani. Here an acreage of about 5 ha yardlong bean Hawaii was grown. Here a very remarkable common cultural practice is a rather dense weed occupation, used as a control measure of pests only in the dry season.

Finally some seed samples were bought in a seed shop (P. Makmur) in Sepatan.

Yardlong bean Cenglong LV 1122, yardlong bean Hawaii
Ciputat LV 1138, yardlong bean Hawaii 3 BN LV 1152,

yardlong bean Sakih LV 1268, sawi jabung Tangerang LV 1130, sawi jabung Agus LV 1260, sawi jabung Sanar LV 1265, sawi jabung Makmur LV 1276, tomat Apel LV 1132, bayam 3 BN red LV 1151, bayam Sanar red and green LV 1264, egg-plant 3 BN Vesperba LV 1154, bayam 3 BN green LV 1155 are considered as superior accessions.

CENTRAL JAVA & JOGYAKARTA : KABUPATEN CILACAP, PURWOREJO,
MAGELANG & WONOGIRI (CENTRAL JAVA); BANTUL, SLEMAN,
GUNUNG KIDUL & KULON PROGO (JOGYAKARTA)

OCTOBER 13 - 22, 1988

TEAM I : Sudjoko Sahat
Prasodjo Sudomo
Dini Djuariah
Ahmad Hanafiah Gaos

CENTRAL JAVA PROVINCE

1. Kabupaten Cilacap

At the office of the Agriculture District Service, the Team was welcomed by the Head of office who gave some general information about agriculture in Kabupaten Cilacap. M. Noor, Head of Horticulture Section, accompanied the team on the trip around Cilacap.

We visited Kecamatan Kesugihan, Desa Selarang and met farmer Pak Sartini. He grows hot pepper (cayenne), cultivar Selarang. This cultivar has medium size fruits, sharp pointed and straight. He maintains his own seed; from 1.5 kg mature fruits he could obtain 25 gram seeds. If the seed is not directly sown, it is stored in bottles and some ash is added at the bottle neck before sealing. He harvested the crop 9 times during the growing season with two weeks intervals. Yield per hectare was about 3 ton.

We also visited Kecamatan Maos, Desa Panisihan, here accompanied by Pak Suryo (PPL Maos) and Pak Bambang (PPM Maos). One of the farmers, Pak Maryadi, had about 1000 m² in use. He grew eggplant and yardlong bean together with bitter gourd in one intercropping system. Two eggplant cultivar were observed, Kopek Ungu and Kopek Putih. The yardlong bean cultivar was Hijau Panjang. Most of the seeds of those crops were bought from other farmers.

Another farmer visited, Pak Basrun at Desa Nglemprang was located on the Serayu river bank. This land belongs to Ministri of Public Works. This farmer grew yardlong bean variety "Nglemprak". They were grown (without stick) prostrate. There are two types of this variety, i.e. white seeded with white pods; red seeded with light blue pods. The pod length was 20-30 cm, sometimes longer, till 50 cm. Most of the clusters had 4 pods, average two pods/cluster. Of the 1200 m² area he could harvest, on an average, 70 kg per harvesting. Harvesting was done 15 times until the end of

the crop (4 months after planting). First harvesting was done 50 days after planting.

Later we visited Kecamatan Kawunganten and were received by Pak Mardji, PPM Bartasari. Some information was presented by him. The major crops of this kecamatan are yardlong bean, eggplant, bitter gourd, hot pepper and some promising tomato varieties like Intan, Ratna (being introduced one year ago). The most prospectful crops were hot pepper and tomato. Total area covered by vegetable crops in this area was 1000-1500 hectares.

Finally we visited farmer Pak Kartasangaja at desa Bulaksari, kecamatan Kawunganten. He had 0,5 ha land planted with hot pepper and eggplant. There were two varieties of hot pepper. Itik Lumut, the plants being short and small with canopy like umbrella; the other variety was called Winong, with short and big fruits. The eggplant variety was Kopek Ungu. From that area this farmer could obtain about 100 kg pepper and 200 kg eggplant per harvest. He produced his own seeds for these crops. The way they grow the crop is the Surjan System.

2. Kabupaten Kebumen

At the office of Dinas Pertanian Kabupaten we were received by Ir. Sudewo Sontokusumo head of Dinas Pertanian and also Bapak Slamet (head of Horticulture Section) who accompanied the team on the trip across Kabupaten Kebumen.

On the market Kutowinangun several kind of vegetables were sold. Variety of tomato overhere was Ratna.

Then we visited BBP at Prembun and were received by Pak Ramlan (Head of BPP). Here they had permanently produced cucumber seeds. Also here they grow the eggplant cultivar BOGOR.

Finally we visited desa Karanggede, Kecamatan Mirit. Most of the vegetables growing here is hot pepper. Name of the cultivar is ITIK GOMBONG. It is short (45 cm height) and a heavy fruits bearer. They cultivated the crop in SURJAN SYSTEM, with 2,5 m bed width. Sometime they grew pepper intercropped with cowpea.

3. Kabupaten Puroworejo

We visited the office of Dinas Pertanian Purworejo and were received by Ir. Suwardono (head of Dinas Pertanian), Pak Djawie (Head of Production Section) and Ir. Murnani (PPS). The last two accompanied the team going around.

We visited farmer Syamsur at desa Krayorlor, kecamatan Kemiri. He had about 700 m² planted with yardlong bean. Name of cultivar is USUS PENDEK. It has short (20-30 cm), white and thick pods.

This kinds of yardlong bean can be consumed as young pod or as mature seeds because the seeds are big. The seeds are mostly obtained from the first cluster.

We also visited farmers Nurhayati/Mamun, desa Pageran, Kecamatan Kemiri. They had about 420 m² planted with Kangkung darat; local cultivar with white flowers. They could harvest 200 bunches per harvest with 20 days intervals.

Finally we visited another farmer: Pak Wirareja in the same place. He had about 500 m² planted with picking amaranth (bayam petik). The cultivar was Kakap Hijau. It has green and wide leaves and height of about 1.5 m. He could harvest about 500 bunches in 5 days-periodes.

4. Kabupaten Wonogiri

At the office of Dinas Pertanian we were received by Pak Suharjo (head of Dinas Pertanian) and also Pak Kasimun (head of Production Section) who accompanied the team on the trip.

We visited farmers Pak Suwandi and Sadino at desa Panekan Kecamatan Eromoko. Here they have about 9000 m². They grow rice in the rainy season (upland rice) and vegetables in the dry season. Because of very dry weather and limited water availability they grow crops being tolerant to drought. Here we found eggplant (perennial) with small fruit, it is not grown commercialy. The other crop was koro (lima bean), grown for commercial purpose. There had two types of Koro: (1) Koro Begog; it is dwarfy, shrubby; the pod is long and big like a sword so it is called "sword bean". It could be consumed as young pods or as seeds; the pod is green and the seed white. (2) Koro benguk; it is climbing and perennial, with black-brown pods and hairy. It has a high content of HCN, so it is poisonous if eaten raw. The way to eat the pods is: blanch first with fresh water for one night and then continue by boiling.

We also visited desa Sedayu, Kecamatan Pracimantoro, accompanied by Pak Sukardi (PPL). In an area of about 27 hectares, farmers were growing chilli pepper as a main crop. There were two cultivars, green and white. These main crops were intercropped with other vegetables, like shallot, yardlong bean and lima bean. There were two kinds of lima bean, the first called KORO UCENG, with small pods and second KORO EBLEK, with big pods. The last is more preferable to the consumer than the first one.

Subsequently we visited desa KUDI, Kecamatan Batuwarno. Here farmers cultivated vegetables in a so called pot system. They dug holes in the stone hills and put the soil in, and then grow the crops. They followed this system since

22 years ago. Then total area was 2 hectares, occupied by 9 farmers. The crops grown here : eggplant (cultivars KOPEK HIJAU and KOPEK UNGU); hot pepper, amaranth and yardlong bean; all of them were local varieties.

Also we visited farmer Pak Sumokarto, desa Tunjungsari Kecamatan Tirtomoyo. The team was accompanied by Kuswarno, head of Pertanian Kecamatan Tirtomoyo. Here farmers formed a group called "Kelompok tani serbaguna". Kinds of vegetables grown here : hot pepepr, chilli pepper, yardlong bean, eggplant, pulling amaranth and cucumber. Hot pepper (cayenne) : local cultivar (red and short fruits). Chilli pepper; white and green fruits.

Yardlong bean : long pods, white and green colour.

Eggplant : Kopek Ungu, Kopek Hijau and Kopek Putih

Cucumber : Green and white colour of fruits, sharp end.

There had been also cultivated primising tomato cultivar : Ratna. Here this cultivar had early maturing fruits but unfortunately this cultivar did not spread out in this region. Amaranth cultivar Kakap Hijau had been cultivated by UPGK (house wife organization activities) but they could not make their own seeds.

5. Kabupaten Klaten

At the office dinas Pertanian we met with Ir. Sugito (head of Dinas Pertanian) and Pak Sukat (head of Horticulture Section) who accompanied the team on the trip across Kabupaten Klaten.

We visited the Seed Farm (BBP) at Pandan and were received by Pak Suyudi (head of BBP). He informed us that most of vegetable area at Kecamatan Pedan is accupied by hot pepper, eggplant, garlic, amaranth, yardlong bean (cultivar Usus Putih: thick pods, not too long, most preferable by the consumers, while the thin pods were not).

In Desa Wiru, Kecamatan Bayat, we were accompanied by Pak Slamet (Head of Cabang Dinas Pertanian Kecamatan Bayat). In this area about 60 hectares is grown with the hot pepper crop. According to the farmer (Pak Tomoprawiro), pepper cultivars grown here has big fruits, red colour and are seedless. The seeds are grown by the farmers. First harvest when the crop is already 70 DAP. Harvesting intervals was 2-3 days. They mentioned that cultivar Tampar could yield 2-3 ton per hectare. (12 harvesting times). For intercropping they grew amaranth pickling type.

We also visited desa Troketon, Kecamatan Pedan, accompanied by Staff of Dinas Pertanian Kecamatan Pedan. Here we found tomato crop in the field, local variety without stick. Other characteristics of this tomato: heat tolerant, small leave, susceptible to leaf virus, small fruits, somewhat drought resistant.

Here also we met farmer Pak Parno, who occupied about 1500 m². He grew hot pepper as the main crop and eggplants as guard rows. The cultivar was Tampar (small and long fruits). First harvest was from 3 months after sowing till 5 months (20 time of harvesting). The seed-need for that area was 100 gram.

In desa Kalipates, Kecamatan Kalipates (Central Klaten) we found lowland garlic plantation (about 2500 m²) occupied by Pak Camat and Pak Lurah. The cultivar was Lumbu Putih. The seed came from Bantul, Yogyakarta. Harvesting time, 100 days after planting, yield was 7.5 ton per hectare (wet) and 4 ton per hectare (dry). To stimulate the growing, the seeds (bulblets) were dipped in fresh water for 24 hours. The garlic planted after rice. The cropping pattern was rice-garlic-rice.

Finally we visited Desa Jombor, Kecamatan Jembung. Here the farmers grew kangkung in one area on the lake bank. When the water decreased, the land can be cultivated with kangkung.

6. Kabupaten Magelang

We visited the office of Dinas Pertanian and were received by Pak Sutaryo Dullah Suhud (Head of Dinas Pertanian) and Ir. Subardi (PPS) who accompanied the team on the trip across Kabupaten Magelang.

We visited Kecamatan Mungkid accompanied by Pak Dayat (Dinas Pertanian Kecamatan) and met a farmer (Pak Kris) growing yardlong bean on about 500 m². The first harvest can be obtained 25 days after planting. Harvesting every 2 days. The highest yield can be obtained at 4th and 5th harvest (30 kg). The cultivar was Usus Hijau.

We visited another farmer in the same area (Pak Slamet). He cultivated a tomato hybrid from Taiwan but already the 2nd or 3rd generation. The crop was not uniform anymore. He used 6000 m². He grew also hot pepper hybrids from Taiwan. This crop was quite uniform, but it had big and long fruits. They had problem with fruit rot diseases. They got the seeds from another farmer (Pak Umar from desa Dukun).

We met also with a farmer (Pak Parto) at desa Sedayu, Kecamatan Muntilan. He grew several vegetables in one area and at the same time. The crops were bitter gourd, chilli pepper (white colour), amaranth, yardlong bean, and eggplant (Kopek Hijau).

Pak Marsudi at Desa Dukun, Kecamatan Dukun, grew hot pepper variety Beauty as large as 2000 m². This variety has big and long fruit and red colour. He covered the ridge with black plastic for a high humidity (black plastic as a mulching). Harvesting time interval was 5-6 days.

Finally we visited another farmer in the same place (Pak Main). He cultivated tomato, variety Berlian. He got the seed from Pak Budiono (Horticulture Staff of the Dinas pertanian). This variety had been cultivated as much as 5 times.

JOGJAKARTA PROVINCE

At the Office of Dinas Pertanian we were received by Head of Production Department, Head of Horticulture Section (Ir. Mulyono) and Head of BBI Ngipiksari (Ir. Budi) who accompanied us along the trip surrounding Jogjakarta.

7. Kabupaten Bantul

We visited a farmer (Pak Yugo) at Kelurahan Srigading, Kecamatan Sanden. In an area of about 1400 m² he cultivate garlic and shallots. The cultivar was Lumbu Putih and can be harvested 80-90 days after planting. The multiplication rate was 15 times. Growing season was June and he obtained his own seed. The weight decreasing was 20:10:9 (wet:dry:seed).

The shallot cultivar was Bali, he could not grow cultivar Brebes, because the bulb will be cracking in Bantul area. Here he could harvest this cultivar 60 days after planting. Mostly the farmers cut the seed (¼ part of bulb) before planting. In this way the harvesting times will be speeded up.

We visited another farmer (Pak Sumardjo) in the same location. He cultivated three crops, hot pepper, shallot and eggplant. Hot peper local variety: direct seeding, without sowing. After 21-30 days the seedlings were thinned, so the planting distance became 25 x 40 cm. Shallot is also local variety with 7-9 splits on an average. Within 50 days after planting the crop can be harvested.

There were two cultivars of eggplant, Glatik and Kopek Hijau. Glatik cultivar had whitish colour, while Kopek Hijau had violet flower colour. The yield was 10 ton per hectare. Selected fruits are harvested at mature stage for obtaining seeds.

We met also with Pak Partodihardjo at Kelurahan Donotirto, Kecamatan Kreteg. He used about 1000 m² and grew chilli pepper and eggplant. The chilli pepper cultivar was white fruit type. He grew the crop with direct seeding method. After one month he thinned the seedlings. The seedlings that were pulled out could be planted in different places (different farmers). One harvest could deliver about 50 kg. The yield was about 7 tons per hectare.

The eggplant cultivar was Glatik, he could obtain more than 2 kg per plant.

Finally we visited Desa Panca Marga, Kecamatan Kreteg. This area was the center of lowland garlic cultivation. The farmers here were supported financially by the private sector. The last is giving farm Credit to the garlic growers. In this place the team met one farmer, Pak Djabari, he is also from the staff of village government. He said that he got the credit about 5 million rupiah for one hectare. From this amount he could earn about 15 million rupiah after harvesting. The farmers stored the yield (garlic) in the same storage (owned by cooperative). The capacity of the store house was about 50 tons. For prevention from the pest infection, they spray with Sevin 85S (0.2 %) with 10-30 days interval.

8. Kabupaten Sleman

This place is located at medium elevation. Not much vegetables in the field could be found, because it was not the right growing season. The team visited BBI Ngipiksari, Desa Hargowinangun Kecamatan Pakem, which distributes the vegetables seeds to farmers in the surrounding area. Ir. Budi Martono, the head of BBI, gave us some information about the activities at BBI. Here they produce vegetable seeds like hot pepper (Tampar cultivar), tomato (cultivar No. 206 from Taiwan, Ratna and Intan) chilli pepper (Kendari Kultivar). This chilli pepper cultivar had characters as follows : the fruit is very small (1-1,5 cm length), very hot (very high hit unit), seedless (one fruit contained only 2-3 seeds), and heavy fruit setting.

9. Kabupaten Gunung Kidul

We visited BPP Gading at Wonosari which one of its staff we were going around in the area. Here we met Pak Arjo Tamin at Desa Siraman, Kecamatan Wonosari. In one area of about 5 hectares he and other farmers grew some kinds of vegetables, such as chilli pepper, eggplant, yardlong bean, lima bean. Two cultivars of chilli pepper were observed, Jemprit Hijau and Rawit Putih. The eggplant cultivars were Kopek Putih and Ungu Panjang. These cultivars were susceptible to bacterial wilt and fruit rot diseases. There were two types of yardlong bean, the climbing type and bushy type. The climbing type has white stem colour, heavy fruit setting and short internodes. The lima bean local cultivar is called Koro Uceng.

Later on we visited farmer Pak Tukijo Handoyo at Desa Logandeng, Kecamatan Playen. He grew several vegetables like garlic, shallots, yardlong bean, tomato and cabbage. The garlic cultivar was called "SUREN", because its origin was

from Bulak Suren in 1957. The planting time was June after rice harvesting. Before planting the seeds were dipped in 1 cc disinfectant/10 l water, 10-20 hours. Harvesting for bulb consumption was 90 days after planting, and for seed bulbs 100 days after planting. Seeds needed for one hectare was 300 kg. Yield per hectare was 8,5 ton (wet), became 5,5 ton (dry) per hectare.

10. Kabupaten Kulon Progo

We visited desa Giripeni, Kecamatan Wates and met Bapak Atmodisastro. He used about 3000 m² with surjan system. He cultivated some kind of vegetables like hot pepper, picking amaranth, mustard (sawi), eggplant and yardlong bean.

Cultivar of amaranth was Kakap Hijau, propagated with cuttings, harvesting period was two weeks. Yield per plant (4 months old) was 5 bunches.

The "Sawi Hijau" crop was harvested leaf by leaf (picking the leaves). Eggplant cultivar was Kopek Hijau, immature fruits being light green and the flowers purple. Several hot pepper cultivars had been found, those were : Tampak, Teropong, Local Wates. They are sold either as green or red fruits.

The tomato variety was called Kingkong, the (big) fruits were sold red or green (mature and immature stage).

CENTRAL JAVA : KABUPATEN DEMAK, KENDAL,
PEMALANG, TEGAL & BREBES

SEPTEMBER 21 - 29 1988

TEAM III : Q.P. v.d. Meer
Rachmat Kartapradja
Yenni Kusandriani
Uun Sumpena

I. Kabupaten Demak; 22 October. Local strains.

Main guidance was provided by P. Budiyo, seed production specialist of Dinas Pertanian Kabupaten (Head : Ir. B. Djoehariah); P. Moh. Djadid KCD (Pimpinan Pertanian) kecamatan Mijen; B. Sri Endarwati, BPP kec. Dempet and P. Sehad, KCD (Pimp.Pert.) kec. Sayung.

In desa Pasir (Mijen) we met with a Kelompok Petani (farmers group) and discussed the growing of hot peppers and shallots. Here the keriting type of peppers is grown, doing good prices in Jakarta because it is pungent, has a high dry matter content and is also suitable for export. Very probably this type (Keriting, Tampar and Bengkulu) was introduced on behalf of Direkt. Bina Produksi. Tampar has bigger fruits than Bengkulu. This type completely substituted the old local type, of which seeds are no longer available. Severe problems are thrips, anthracnose, virus and wilting. Average yield of Bengkulu and Tampar vary between 4 and 9 tons/ha. The growing of shallots is done ala Brebes, the acreage amounting 200 ha by now. Bima (globe shaped) is the main variety, Ampenan and Kuningan being mentioned as well. The planting material is obtained from Brebes, but the people like to produce their own bibit.

In Kedung Sarimulia (kec. Jepara) we could buy seed samples of egg-plants (Cengkir; Kelapa-shaped), tomato and yardlong bean from P. Karsi. We missed a chance to collect a type of local vegetable tomatoes.

In kec. Dempet we visited the chairman of a farmers group (P. Jasmo) 'Sumber Agung' in Kebun Agung. He generously offered us seed samples of a number of vegetables, probably egg-plant (big long green fruits), sawi (petsai? but bearing seeds locally) and cucumber (white) being the most interesting. The peppers are small fruited (keriting type), very variable, but looking healthy.

In kec. Sayung we visited P. Nawasari, chairman of a farmer's group in Bulu Sari. He provided us with seeds of yardlong bean (originating from Kaliwungu), amaranth, hot

peppers and egg-plant. The pepper strain has been grown here for about 25 years; it has big fruits : 15-20 cm long.

Cabe besar keriting LV 1448, Terung Cengkir LV 1449, Ketimun Putih LV 1453, Sawi jabung LV 1455; Cabe LV 1461 and Terung Surabaya LV 1462 are being considered as superior local strains.

2. Kabupaten Kendal; 24 Oct. 1988. Local strains

P. Supaat, Pelaksanaan teknis (technical manager) of the Dinas Pertanian Kab. (Head : Ir. Sruyoto) was providing the main guidance.

The growing of vegetables is increasing because Kendal is situated on the main road Semarang-Jakarta. Also the demand from restaurants along this road increases e.g. for preparing sayur asin (salted vegetables).

The farming-system is padi-palawija (e.g. vegetables)-padi.

The main crop in this region (e.g. in the visited, kecamatan Pegandon, Brangsong and Kaliwungu) is yardlong bean. The only type is Usus Hijau, which has been grown here by several successive generations of farmers; perhaps during more than 100 years. So the Usus Hijau of P. Datun in Purwokerto very probably is not an original cultivar because it is rather similar to Usus Hijau of Kendal, the only difference being the higher yield of Usus Hijau Kendal. Probably in Kendal all Usus Hijau is rather similar. In general the farmers select the lower pods for seed production, but only twin-ones, no singles. Spraying pesticides namely Lanate, seems very essential for successful growing.

Shallots are mainly planted in September. The planting material is obtained from Brebes.

An other important crop in this region is egg-plants of which two main types are grown, Pusus Hijau and Kopek Hijau, which produce yields up to 50 ton/ha.

Cucumbers are grown prostrate, the main type being Krai (pickling melon) which is eaten as the common cucumber.

The cabbage variety K.K. Cross is grown on a small scale producing heads of 2-3 kg.

In Weleri (desa Weleri) we visited a vegetable grower (P. Sulistiowati; mainly breeding rice) specializing in large scale vegetable growing. Egg-plants 'Farmers long' (purple) and tomatoes King Kong - Precious _ Delight, all from Know You Seed, are grown in the highland at more than 600 m altitude, King Kong being most resistant to bacterial wilt. Peppers of the same origin : Long Chilly (big) and Hot Beauty (small), are grown in the lowlands, the yield of Long Chilly reaching 40 tons/ha. Also the Indonesian varieties Bengkulu and Tampar are grown. The main destination of these vegetables is Semarang.

Kacang panjang Usus Hijau Purbalingga LV 1463, Terung Pusus Hijau LV 1470, Terung Kopek Hijau LV 1471, Ketimun Besar LV 1472, Terung Kopek Besar LV 1473, Kacang panjang Usus Hijau LV 1474, Ketimun Krai Pegandon LV 1475, Terung Kopek LV 1478 and Terung Pusus Hijau LV 1479 are being considered as superior local strains.

3. Kabupaten Pemalang; 25 Oct. 1988. Local strains.

Meeting at Cabang Dinas Pertanian Kab. with P. Maryana, Head, and P. Agoes Kasi Bigram (=Bina Program). They gave general information on vegetables in Pemalang which will be relevelated when discussing the separate crops.

P. Agoes and P. Sudikno, Mantri Pertanian (= KCD) in kecamatan Pemalang were giving guidance. In a seed shop in Pemalang local seed samples were bought of egg-plants, hot peppers, cucumbers and Amaranth.

From a farmer (P. Tapsir) seeds of a locally grown tomato (tomat batu) could be bought, being of irregular shape and rather small sized but of a very hard texture (batu = stone). Also bigger tomatoes are grown but their keepability is bed; seeds could not be obtained. Ratna and Intan can not been grown here. The tomato crop did show slight virus like symptoms. Growing is done in combination with yardlong bean.

The planting material of the shallot crop in Pemalang is obtained from Brebes. Ampenan and Kuning are grown; Kuning is preferred in the dry season because of its shorter growing period.

Yardlong bean is of the Usus Hijau type. It is grown on beds, in a mixed cropping system, e.g. together with shallots, peppers and (in the ditches) rice. The crop appeared to be rather healthy (effect of mixed cropping?). The egg-plant crops (cengkir hijau) were very healthy, hardly being attacked by thrips although grown directly besides peppers. This crop was grown with and without rice in the ditches.

The cucumbers are of a rather short type (Wuru) and are grown on sticks.

In Pemalang the growing of lowland garlic is tried out. A first experiment, using Lumbu Putih from Yogya, resulted in a rather low production because of small bulbs and cloves.

In Bosong Nangka we received seed samples of peppers, tomat sayur, yardlong bean and cucumber.

Terung Hijau Panjang LV 1481 and Tomat sayur LV 1485 are being considered as superior local strains.

4. Kabupaten Tegal; 26 Oct. 1988. Local strains (+ penyakit otomatis)

In kab. Tegal main guidance was given by P. Mashur, Kasi Bigram Dinas Pert. Kab. and P. Sutarso, Pimpinan Pertanian kecamatan Dukuh Turi. Also met were : P. Suken, Pimp. Pert. kec. Pangkah, P. Noorcahyo, BPP kec. D. Turi and P. SURADI, BPP kec. Bojong.

Some general aspects : some hundreds of ha. of garlic are grown in the highland, e.g. in kec. Bojong; here also sawi is grown; tomat sayur is grown on a small scale in most lowland kecamatan. Shallots (here indicated as brambang) are mainly grown in the coastal area.

In Sidapura (Dukuh Turi) growing aspects of several crops were discussed. Shallot varieties are : Garut, Kuning, Ampenan, Bangkok, Medan and Jalaksana; of Kuning two types are known; biasa and Gombong. Gombong has darkish green leaves. Jalaksana is the oldest variety, being grown for more than 50 years. Non-bolting varieties are called bawang Jawa (e.g. Garut, Ampenan, Medan, Jalaksana); Kuning bolts very easily (> 70%) and Bangkok sporadically. Ampenan is very suitable for the rainy season and Kuning (like in Pemalang) for the dry season, because of its short growing season. In the field the phenomenon of penyakit otomatis was observed occurring on separate plots of some square meters. It only occurs when heavy rains are followed by relatively hot weather. It is characterized by dying back (yellowing) of the leaves within some days, beginning at the tips. It affects crops of medium age and older. No leaf spots occur in contradiction with trottet, that occurs in the wet season and is controlled by means like anthracol, dithane and daconyl. The disease seems to attack all strains under very specific conditions and only very tidially. Material was collected for investigation in Lembang for presence/absence of fungi. Essential for identification seems to be making observations in the field directly after heavy rains. Of Lombok two types are grown biasa and Bangkok. Bangkok has fruits up to 20 cm but being not very hot, yielding up to 8 tons/ha. Peppers are often grown together with shallots. In Pengarasan (Dukuh Turi) cucumbers are small fruited and are sold as far as Jakarta. The yardlong beans are of the putih type and have very long pods. Eggplant is of the Kopek type (oblong green); spraying for pest control only once a week. This crop appeared to be very healthy and vigorous but the fruit set seemed to be insufficient; prices were vey low. Tomat is of the sayur type (small irregularly shaped fruits) and appeared to be remarkably healthy.

In Lawatan (D.Turi) a considerable acreage (several ha) of Cabe rawit is grown; in D. Turi about 20 ha totally. This

type is turning green-white-yellow-red and has relatively big fruits; the slender type is preferred. The crop suffered badly from thrips but was nevertheless still remarkably productive. It can produce for several years. Prices were as high as about 1000 R/kg ; yields amount 4-5 tons/ha.

In Grogol (D.Turi) Bawang kucai is an important crop. In kecamatan Pangkah mainly the same crops and types are grown as in D. Turi. Mixed cropping was seen of cucumbers and yardlong bean on sticks, both being very healthy. An other combination was maize and (prostrate) cucumbers. In Balamoa several local strains were bought in a seed shop as well as in (kecamatan) Slawi.

Finally kecamatan Bojong was visited. Here (highland) a large acreage of garlic is grown. Varieties; Ampenan Lumbu Hijau, Lumbu Putih (from Bali), Lumbu Kuning and Layur. In-season growing starts in May-June (all varieties, L. Hijau being the most important). Of-season growing starts in October and March (all varieties, except L.Hijau, which suffers to much of rain). It is not known if this L. Hijau is similar to L. Hijau of East Java. The storage of planting material is done under dayly application of smoke. The planting material is kept for 6-9 months. The new bibit was being prepared from the May-June planting and will be planted again in the next dry season.

Terung Kopek Hijau LV 1491, Kacang panjang Putih LV 1493, Ketimun LV 1494, Terung Kopek LV 1495, Tomat sayur Ranti LV 1498, Cabe rawit Putih LV 1500, Kacang panjang Usus Putih LV 1501, Cabe rawit Putih LV 1503, Kacang panjang Hijau LV 1507, Tomat sayur LV 1508 and Tomat sayur LV 1513, Kacang panjang Hijau LV 1515 and Cabe Lombok Bangkok LV 1521 are being considered as superior local strains.

5. Kabupaten Brebes; 27, 28 and 29 October 1988. Local strains (+ penyakit otomatis)

Guidance was given by P. Agus of the Dinas Pertanian Kab. Bagian Hortikultura-Produksi; P. Sunardi of BPP Kebonagung (kec. Jatibarang + kec. Larangan); P. Tusnya, Mantri Pert. in Larangan; P. Sutarso, Pimp. pert. in kec. Wanasari; P. soeprpto of BPP kec. Bulakamba; P. Samsudin, mantri Pert, in kec. Kersana; P. Sugeno Lasna, mantri Pert. in kec. Ketanggungan; P. Nuryadi, K.D. in kec. Tanjung; P.H. Duladjid, mantri Pert. of kec. Losari.

In BPP Kebonagung the phenomena of penyakit otomatis was discussed. Here it occurs mainly in Feb.-March. Watering immediately after rain does reduce the damage. The leaves are dying very soon after infection : within some days and maximally within one week. It can occur already 20 days after planting. Also mist can generate the phenomenon. A visit was paid to Tegalurung (Kelurahan Cenang, Kec. Jatibarang). Here information and bibit was obtained of garlic, shallots and peppers. Garlic was introduced from the Solo-region some years ago as Lumbu Kuning. It is planted in June and harvested in September wherafter it is stored till next June when it is planted again; or earlier, from March on. The product appeared to be of a rather good size and good quality. Also Lumbu Hijau from Bojong is tried but up to now the experience is very limited; it has a longer growing period (120 days) than Lumbu Kuning (85-90 days). This year also Chinese material (import) is tried out. Of shallots Ampenan, Kuning and Bangkok are grown. Bangkok is the best variety (about 14 tons/ha) but only if imported bibit is used. Kuning gives bigger and less bulbs (12 tons/ha) than Ampenan. Kuning is especially for the rainy season. In the dry season also Ampenan and Kuning Gombong (dark-green leaves) are grown. Of cabe besar Semarang (long fruits) and Jatiranggu (short-thick; from Tanjung) are grown.

In Sitanggal (kec. Larangan) information was given by P. Juardi. Kuning, Ampenan and Bangkok were planted now; Medan was planted in Juli. Here in Oct-Nov. penyakit otomatis occurs frequently (especially between 40 and 50 days after planting) in all varieties. Again separate infected plots were observed. All together the phenomena of penyakit otomatis go into the direction of downy mildew (*Peronospora destructor*). If so field observations directly after rain or heavy mist will give certainly. The Cabe variety Semarang has rather big fruits and bears during a long period (up to 1 year); it has the best keeping quality. Tit and Ir give (only) a high yield in a (too) short period. Lombok gives very big fruits but produces very few seeds. Tit, Ir and Jatiranggu produce only about 4 tons/ha whereas Semarang can give 16-18 tons.

In pedesaan Larangan (kec. Larangan) P. Tarsot was giving information and bibit. Shallot variety Sumenep produces only about 5 tons/ha and both Kuning and Bangkok about 12 tons/ha. Bangkok is grown from import bibit. Also Ampenan is grown. Of Kuning a special own variety is grown. Here Kuning Gombong is called Kuning Kalung. In general Sumenep is more resistant to diseases than other varieties. Of cabe Semarang and rawit are grown.

In Keboledan (kec. Wanasari) the information was that shallot varieties Kuning and Bima can be grown in the rainy season as well as in the dry season. Ampenan, Garut, Sumenep and Medan are only suitable for the dry season. The production in the rainy season is lower (about 4 tons instead of 5 or 6 tons). Some times about 1/4 of the shallot acreage is attacked by penyakit otomatisch. Sumenep is less susceptible to all diseases. Cabe Super has shorter fruits and is more productive than Semarang (5 tons and 4 tons/ha respect.).

In Pakijangan (kec. Bulakamba) many seed samples were obtained from B. Wirto. Of shallots many varieties are grown Kuning Gombong (high-round), Kuning biasa (round), Ampenan, Medan, Bangkok, Bima Brebes, Sumenep and Ir. Here a special type of snap beans is grown kacang buncis, having darkcoloured seeds (=local Wonosobo).

In Kamukten (kec. Kersana) P.H. Dulhadi did give information on the growing cyclus of shallot variety Kuning : planting in October, February, June, Oct. etc. In general shallots are ready for planting after 3 months of storing. Bangkok is the best shallot variety; bibit must be imported and is planted in June-July; it yields about 18 tons (other varieties only 12) and has a good keepability (4 months). Kuning is second best. Sumenep is a low yielder and an excellent keeper. Bagal is here a promising Cabe variety.

In Ketanggungan (kec. Ketanggungan). P. Salim grows cabe varieties Tit, Ir and Semarang, Ir being the best (19 tons per ha). He also gave information on shallots : Kuning, Bangkok and Medan are grown, Bangkok is the best but only for the dry season (20 tons/ha; Kuning 12 tons/ha.). Kuning is the best for the rainy season. P. Camat told that in desa Kubangsari about 20 ha tomatoes are grown in the dry season. Because of lack of time this (far) location could not be visited.

In Kemurang Wetang P. Nuryadi (Kep. desa) gave information on the vegetable crops in his desa. Of shallots now Kuning is planted (own bibit) for the wet season, Bangkok is planted in May-June, for the dry season. Of Cabe Ir (small and pungent) and Semarang (bigger) are grown. Formerly a big size variety (Lombok) was also grown (8-12 tons/ha). Of terong Kopek and Bulat (both green) are grown. Of tomat Apel is grown and of

cucumber Surabaya (big-fruited), Wuku (small-fruited and somewhat red) and Krai (pickling melon). Varieties of kacang panjang are Plentong, Usus putih and Lanjaran hijau. P. Wiharjo of the same desa is trying to grow garlic (Lumbu Putih from Bantul, Yogya). Because of drought the first crop did give small bulbs and cloves. According to this experience cabe Ir is more suitable to the dry and Semarang to the wet season.

In Kedungneng (kec. Losari) from P. Lurah the following information was obtained. Of shallots Kuning is not of importance. Formerly mainly Ampenan was grown (bibit directly from Sumbawa). In January and February (and also in March and April) Timor and Bima are grown (respect. 54 and 59 days). Bima asks 59 days in the wet season and 65 days in the dry season, producing respectively about 8 and 10 tons/ha. In April and May Ampenan and Bangkok are grown; bibit respectively from Sumbawa and Bangkok. Bangkok can yield about 15 ton/ha. The shallots are grown in combination with hot peppers. Penyakit otomatis, trottel and lompong are well known diseases. Because of lompong (pes, lepra) the crop is dying completely-leaves and bulbs, the main reason being poor drainage during heavy rains. Of peppers Semarang, Ir, Tit and Lombok are grown. Semarang gives the highest yield, but Ir is of the best quality. Lombok has the biggest fruits but is less pungent.

In Babakan (kec. Losari) following P. Lurah 50-60 ha vegetables are grown amongst them egg-plant and tomato. The local tomato variety is Apel, giving the best results in the wet season.

From kec. Brebes shallot variety Garut (high shaped; 9-12 ton/ha) and yardlong bean Putih (7,5 ton/ha.) were obtained.

Cabe Lombok LV 1524, Cabe Semarang Cenang LV 1525, Cabe Semarang LV 1532, Cabe rawit Putih LV 1533, Cabe Super LV 1540, Cabe panjang LV 1547, Buncis Wonosobo LV 1549, Cabe Bagal LV 1555, Cabe Ir LV 1558, Cabe Semarang LV 1560, Cabe Ir LV 1562, Cabe Semarang LV 1563, Kacang panjang Usus Putih LV 1565, Ketimun Wuku LV 1566, Ketimun Surabaya LV 1567, Tomat sayur LV 1571, Cabe Semarang LV 1574, Tomat Apel LV 1578 and Kacang panjang Usus Putih LV 1580 are being considered as superior local strains.

6. Cultural practices

Cultural practices in all kabupaten visited varied in plant spaces, fertilizers and Pesticides used. But in general we can conclude that in every place the farmers cultivate the land/soil two times with heaving and then bedding and leveling for all commodities. Of shallot plant spaces varied between 15cm to 20cm between rows and 10 cm to 15 cm in row. No stable manure is added to shallot production, while combinations of Urea, TSP and KCl varied between 250 kg, 400 kg-450 kg and 200-250 kg per Ha respectively with 2 to 4 times intervals during the growing season.

Pesticides known and used by the farmers are Antracol, Curacron, Vondozeb, Dithane, Decis and Difolatan, using 2 gram or cc per liter (or as indicated on the lable at 2-3 times a week.

Of yardlong bean plant spaces varied from 20 cm to 50 cm in rows and 30 cm to 80 cm between rows. No stable manure is given except at desa Kebon Agung, kecamatan Dempet, kabupaten Demak; the farmers give stable manure of 20 ton per Ha; 10-15 gram mixed fertilizer as Urea, TSP and KCl per plant are given two times during planting period. In some areas 750 kg-800 kg mixed fertilizer (Urea + TSP) is given. Some areas also give 400 kg Urea + 400 kg TSP + 200 kg KCl per Ha, given 2 to 4 times during planting period. Almost all areas are using the same pesticides and the same dosage with other commodities.

Of eggplant spaces varied between areas from 40 cm to 60 cm between rows and 20 cm to 50 cm in rows. No stable manure is given except in desa Kebon Agung where it is given about \pm 2 kg per plant, while 5-10 gram per plant of Urea and TSP were given every two weeks. At other places like kecamatan Brongsong mixture of TSP, Urea and KCl of 1,2 ton/Ha is given for 8 times with 2 weeks intervals. In Kaliwungu mixture of Urea + TSP + KCl of 900 kg/Ha is given three times during the growing period and 1 ton/Ha of Urea and TSP are given two times during the growing period. In desa Sidapura kecamatan Dukuhsari, Tegal, while in Brebes: desa Pakijangan kecamatan Bula Kamba 400 kg Urea and 400 kg TSP per Ha. are given at two weeks intervals. In Kecamatan Tanjung 400 kg Urea + 400 Kg TSP and 200 kg KCl per Ha. are given 2-4 times during the growing period.

Kind of Pesticides and dosages used are almost similar for all areas and commodities.

Pepper plant spaces varied between kecamatan in all kabupaten between 20 cm to 50 between rows and 10 cm to 60 cm in row. The smallest plant space of 20 cm x 10 cm was

found in desa Sitanggal, kecamatan Larangan, and kecamatan Jatibarang desa Cenang in Brebes. The widest plant spaces were found in kecamatan Ketanggungan (40 cm x 20 cm) and kecamatan Brongsong kabupaten Kendal (40 cm x 60 cm).

In general no stable manure is used by the farmers in all visited kecamatan and kabupaten except 25 ton stable manure used at desa Kebonagung kecamatan Dempet, kabupaten Demak.

Fertilizers are given by the farmers using Urea, TSP and KCl with dosage of 250 - 400 kg Urea, 250-400 kg TSP and 120-200 kg KCl per Ha. They also are used to give Urea, TSP and KCl together for 800 kg to 1.8 ton per Ha as mixture.

Pests and diseases controll are used to be done by the farmers in all areas using e.g. Atabron, Antracol, Tiodan, Basudin, Benlate, Azodrin, Sevin, Dithane M45, Bavistin and other pesticides with 2 times a week intervals dosage as indicated on the labell of every pesticide.

Of the cucumber plant spaces varied from 25 cm to 60 cm between rows and in rows depending on the cucumber varieties planted. Smaller plant spacing is done for unstaked cucumber while wider plant spaces done for staked cucumber. No stable manure is given; only fertilizer of 200 kg to 400 kg per Ha; urea 200 kg to 400 kg per Ha; TSP 50 kg to 200 kg per Ha; KCl depending on the location and soil fertility. Some locations mixed fertilizer : 800 kg to 1000 kg (Urea + TSP + KCl) are given. Some areas also give 5 gram to 10 gram mixed fertilizer per plant, given 2 times during planting season.

The same pesticides are given; almost similar to the other commodities with the same spraying intervals and dosages.

Of tomato spaces varied between the varieties; for local variety unstaked plant space is 60 cm between rows and 20 cm in rows in kecamatan Tanjung (Brebes); 60 cm x 25 cm in kecamatan Dukuh Sari (Tegal); 50 cm x 50 cm in desa Bojong Bata, kecamatan Pemalang, kabupaten Pemalang. These wider plant spaces are because the farmers at these areas are used to plant big tomato variety. No stable manure is given ; of Urea and TSP 1000 kg per Ha is given. Gandasil is also given as leave fertilizer. For unstaked tomato like we found at desa Sidapurna, Tegal 15 gram of Urea and TSP are given two times during the growing period. While in kecamatan Ketanggungan fertilizer dossage of 400 kg TSP + 400 kg Urea and 200 kg KCl per Ha are given 2-4 times during the growing period.

Kinds of pesticide and dosages are almost similar to other places with other commodities.

Of Garlic plant spaces we found in kabupaten Brebes at kecamatan Larangan desa Sitanggal are 15 cm x 15 cm; also no stable manure is used. Urea of 250 kg and 250 kg TSP + 120 kg KCl per Ha are given 4 times during the growing period.

Pesticides used are : Curacron, Antracol; dosages of 0.2 gram/l are given 2-3 times a week.

CENTRAL JAVA : KABUPATEN PATI, BLORA, GROBOGAN,
SRAGEN & BOYOLALI

OCTOBER 31 - NOVEMBER 8, 1988

Team II : Anggoro Hadi Permadi
Sartono Putrasamedja
Suryadi
Etty Purwati

1. Kabupaten Pati, 31 October 1988

Along the survey in this area team II was accompanied by Pak Kismadi, Technical Staff Production Section, in charge of Horticulture Crops, Dinas Pertanian Kabupaten Pati. Kecamatan visited: Wedarijaksan and Jaken.

Kecamatan Wedarijaksan is the production centre of yardlong bean, that is traded to other areas, like Semarang, Pekalongan, Bojonegoro and Surabaya. The old cultivar cultivated here (at desa Jontro) is "Lailah", because of its long pods (being longer than those of cultivar "Ruji" that has short and white pods). They grow the crop with planting distance 80 x 70 cm, length of sticks 1.20 m with strings in between them. This is done for easy harvesting.

Cultivars grown now are similar to Usus Hijau, but the pod is a little bit shorter (40-50 cm, in the field), round, green, with 18-20 seeds/pod. May be the pod would be longer if they give enough water. First harvest when the crop is 50 days old; the yield was 10 ton/ha (measured by BPP Wedarijaksa). Insect problem was caused by "Engkuk" (*Heliothis* spp), attacking flowers and pods. Therefore after harvesting they sprayed with 5-6 days interval.

At desa Ngurensiti, the old cultivar "Ruji" had been replaced by a new cultivar introduced from Buru island, probably Usus Hijau: it has 75-90 cm length, 20-22 seeds/pod + green colour. The "Ruji" cultivar is still grown in mixed cropping but to a small percentage (2% only); white pod; 35 cm length; 10-15 seeds/pod; climbing habit. According to Pak Suwendo (key farmer) 5 years ago the Ruji cultivar reached 30% of the acreage but decreased drastically.

At desa Ngurensiti yardlong bean is cultivated as a relay with shallot. Yardlong bean is transplanted 50 days after shallot planting at the side of beds. Planting distance 1m x 0.8m or 0.5m x 1.25m, 3-4 seeds/hill. The

stick as at desa Jontro; 1.20m length; sticks connected with strings.

The team found also eggplant. Cultivar "Terong Hijau", has violet flowers, light green fruits, being round, 20-25 cm in length, 7.5-10 cm width. Stem is green; height 1.30-1.50 m. Cultivated as mixed cropping with pulling amaranth. Planting distance was 0.8 x 0.8m or 0.6 x 1.30m. First harvest began at 3.5-4 month after transplanting with 5 days interval; 2-3 fruits/plant could be picked up every harvesting. According to the farmer this cultivar was not resistant to bacterial wilt, but more productive than Taiwan cultivar. It can be grown for more than one year if enough water and fertilizer is available. This cultivar has been cultivated since long ago, may be more than 25 years.

Shallots were planted at desa Ngurensiti, seeds originating from Surabaya. It is Ampenan and the farmers maintain it themselves. The crop is planted on beds, mostly together with yardlong bean. Yield was 7 ton per hectare, one week after drying. Bima cultivar was not so preferable because it easily lodges down and yields less than Ampenan, although Bima is rather resistant to diseases.

Amaranth cultivar "Betok" is cultivated overhere, but because of limited demand it is grown to a small extent only.

It is cultivated only for home consumption. Peppers were not in the field at the moment. According to them they grow Keriting or Tampar. They obtain the seeds by buying the fruits and extracting the seeds.

At kecamatan Jaken we only found a new crop of shallot (just planted because of rain fall). The crop was cultivated on beds (width 50-60 cm) with planting distances 10 x 20cm. At first they grew "Mantik" cultivar, but its multiplication was only 1:5. Then, after they changed to the "Mondol" cultivar, the yield rate became 1:10. The seeds came from desa Sukarukun (in the same kecamatan). Those who produce seeds, let the crop until 72 days in the field, and grew in the dry season under irrigation. For consumption, normally they harvest 60-65 days after planting.

2. Kabupaten Rembang; 1-2 November 1988

Ir. Dwi Sumarno accompanied the team on the trip to kecamatan Sluke, Sarang, Kragan, Sedan, Sulang and Rembang. These were dry areas (9 months dry), fresh water was the problem, so the crops were not very normal.

At Kecamatan Sluke tomato "Tomat Sayur", could be found just beginning to bear. Growth habit is indeterminate; dwarf (70 cm); light yellow corolla; the stigma was covered by the anthera; 5 flower buds per cluster. The fruits have green

shoulder and irregular shape. No sticks were used to support the plants. There were also chilli pepper seedlings in beds.

In Kecamatan Sarang the hot pepper Tampar cultivar is popular. This cultivar showed variation in growth habit (upright and spread) fruit colour (red and violet) and flower colour (white and purple). Cultivation on beds of 2-3 rows, planting distance 50x(50-70)cm. They obtained the seeds from fruits bought from the market. They had problem with water supply, so they had to replant the seedlings several times. Besides that, thrips and leaf roll became big problems.

In other villages we found Tampar as well; it is transplanted as big seedlings (45-55 days old); first harvest 2.5 months after transplanting. We got information about a red pepper cultivar, called C-4, originating from Blora. The plants were dwarfy, the fruits small. Fruit contained many seeds; seedling age: 25-30 days.

In kecamatan Kragan we found cultivation of red pepper "Lombok Abang" started two months agoes. Seeds were produced by the farmers themselves. We found also eggplant cultivar Kopek (green fruits, purple flower, same as in Pati area). The crops were cultivated on 1.80 m wide beds, 30 cm height, protected from flooding after heavy rainfall. Harvesting at 2 weeks' intervals as long as 6 months.

Yardlong bean at desa Karanglo, Kecamatan Pancur, was just ready for transplanting. The seeds originated from Pati but are now locally produced. In the last season not so many farmers could produce seeds (because of drought). Only one farmer could.

In a seedshop in the Rembang market (Kecamatan Rembang) the team could not find vegetable seeds.

Tomato and eggplant were planted in rice fields. At the time of visiting, the crops were already 4 month old and had been harvested 10 times. The cultivar of tomato "Tomat Sayur" had flat shape and was cracking. The eggplant cultivar "Kopek Hijau", had purple flowers and just started fruiting. It covered a large acreage.

Of many vegetables rather large acreages were found, however, for cucumber and yardlong bean the season was over. In Sumberejo and Kedungrejo the cultivars of eggplant and tomato were similar. The Glatik cultivar of eggplant (purple fruit) was found in small plots (less than 500 m²).

In kecamatan Sulang it was raining extensively. Some farmers were beginning to cultivate shallots, yardlong bean, cucumber (inter cropped with corn or yam). The season of cucumber and yardlong bean was over.

Cucumber and yardlong bean and also tomato are grown in this kecamatan, i.e. in desa Kebon Agung. Two cucumber cultivars are grown: Timun Watang, with long fruits and

grown on sticks; Timun Wuku (rather small; without sticks); on one plant normal and bitter fruits are found. One cup of seed can yield 35-40 kg fruits at one harvest; total harvesting was six times. For one hectare 8 cups of seeds are needed, so yield potential is only 6 ton per hectare.

3. Kabupaten Blora; 3 November 1988

Kecamatan visited: Todanan, Randublatung, Jepon, and Blora. Most of the area is cultivated with field crops, especially corn, soybean and mungbean. The rainy season was already going on for one month. Vegetables crops were rare. Vegetable seed shops were not there, except one collector of yardlong bean with limited stock. Farmers always produce their own seed. Pak Sutarman from Dinas Pertanian Kabupaten Blora, accompanied the team on the trip.

Kecamatan Todanan is famous because of shallots (local cultivar). They apply a lot of stable manure and a limited amount of fertilizer. This makes the bulb small and of a good quality for seed. That is why farmers from Brebes come to this area to buy the shallot seed. There was also a pepper cultivar (Tampar Cacing) with thin and short fruits like cultivar Bengkulu. Another cultivar was Tampar Malam with big fruits. These peppers are planted in February-March season and harvested in July-August. They buy the seeds from desa Wirosari. Shops in this Kecamatan did not sell vegetable seeds.

There were yardlong beans in Kecamatan Ngawen. The area was small and they grew this crop just as a gamble because it was off season. They got the seeds from one seed collector, Ibu Susilo. She was (only) making selection of the collected seeds, but no selection in the field. She could not mention a cultivar name but it had long pods. She mentioned cultivar "Ruji" as having short pods but heavy fruits set. Planting distance was 50 x 70cm; support by 1.20m sticks with strings in between.

In kecamatan Randublatung (timber area) we found the white chilli pepper cultivar Jempling. This crop was intercropped with corn, planted on beds (1.80m width); corn at the sides of beds. Planting distance of pepper was 1.20 x 1.0 m. The plants showed yellowing leaves, mostly attack by virus. Another type of chilli pepper was called Jemprit. It had green, rather heavy fruits. The Randublatung area also gets vegetables from Magetan, including garlic and red pepper (bigger and longer than IR brebes).

In kecamatan Jepon people were just preparing shallot cultivation. The local cultivar in this area is "Mentik" with red to purple bulbs and yield potential of 3-4 ton/ha. Cultivar "Boro" has a pale colour and will be planted first.

The problem was disease, called "oler", attacking the crop when 35 days old.

The leaves turn white and lodge, especially in the rainy season. Another disease was "lodoh" (rot), the leaves start rotting and spread over the bulbs. The farmers need fertilizer recommendations.

4. Kabupaten Grobogan; 4 November 1988

The team was accompanied by Pak Suwarna of the Staff Dinas Pertanian Kabupaten Grobogan. Kecamatan visited: Toroh, Tangen and Tegowanu. In the last kecamatan, red peppers and eggplants were just transplanted. They did not have seed stock. According to them the seeds could be obtained at the market in the morning.

Kecamatan Toroh is the main production center of chilli pepper. In all three growing areas visited, all the crops suffered from leaf roll. Chilli pepper was mixed up, as could be recognized from the growing habit of the plant. Some of them grew straight up, while the others spread out. Fruits did show much variation in size as well as in colour (white, green, purple-white). One farmer, Bu Marni, did not spray the crop anymore, it was already too late. White chilli pepper is called "Jemprit" or Impring and the green one Japlak, the latter having narrower and darker green leaves. Because of pests and diseases the yield became lower and the growing area decreased significantly (in 1985/1986).

Besides chilli pepper, also eggplant cultivar Kopek Hijau was grown. This type is similar to that in Blora and Pati. It has purple flowers, and green stems and leaves.

In another village, Boloh, the chilli pepper was very dominant, being grown in July-August with irrigation. Here also the cultivar was mixed up, having white and green fruits. The green ones are called Japlak and the white ones Jemprit. The price of Japlak was lower than of Jemprit. During the last 2-3 years they had problems with fruit drop in cultivar Jemprit, so it is decreasing. Before they could harvest about 100 kg per harvest from 0.5 hectare, but now they got only 10-25 kg even if they added Gandasil.

Japlak fruited better, although the leaves were rolling (but still green). In general they had problems with pests, diseases physiology and growth.

Growing vegetables like eggplant and cucumber had been finished however seeds were found at the Purwodadi market.

In kecamatan Tegowanu (eggplant area), the farmers were just sowing the crop, that is why the team could not get seeds from farmers. The cultivar was Kopek Hijau. Seeds could be obtained in the market in the morning. Most farmers bought seedlings (eggplant and red pepper). The seeds originate from Gubug.

5. Kabupaten Sragen; 5-7 November 1988

Kecamatan visited: Tangen, Mondokan, Sukodono, Sidoharjo, Kalijambe and Sumberlawang. On the trip, the team was accompanied by Bapak Soejatno, Staff of Dinas Pertanian Sragen.

In kecamatan Tangen the crop was chilli pepper (desa Ngrombo). The crop was mixed up like in places visited before. Variation was found in type of plant (green, white, upright or spread) and flower colour (white and purple). Cultivar Japlak and Jemprit were planted with distances 40 x 50cm. Plant height was about 1.20m. Seeds came from Sragen. In the desa market (Ngrombo) vegetable seeds were not available. Some farmers had small stock at their houses for following crops.

Other vegetable cultivated here were winged and lima bean, cultivated at the rice field dikes.

In desa Baleharjo, kecamatan Sukodono, the main vegetable crop was chilli pepper Jemprit cultivar. The population was a mixture between white and green types. The problem faced by the farmers was limited fruit set, because many flowers dropped. The big growing season is March. Farmers use their own seeds or buy from places like Toroh in Kabupaten Grobogan. Most of the leaves were rolling, yellow and attacked by thrips. Some plants had still good yield; were probably tolerant to environmental stress. The fruits of these plants were harvested for collection.

Also grown here was amaranth Giti Merah cultivar. Unfortunately it was not popular overhere, so it did not develop.

Yardlong bean was found in Kecamatan Sidoharjo, beginning to bear (almost first harvesting). Cultivar: Usus Hijau. The seeds were obtained by themselves or bought at Sragen. The sticks were upright, interconnected with strings. The height of sticks was 1.5 m and the planting distance 40 x 35cm. They irrigated the crop with a flooding system, the water being pumped up. The cultivar has pods of 50cm, round, and green when immature. The main pest, Heliothis, could be prevented by spraying Dursban intensively.

In kecamatan Mondokan we could find eggplant cultivar Pandan. This cultivar is similar with Kopek Hijau, but the fruit is darker green (purple flowers and green stem). Planting distance: 80 x 75cm. Cultivated in monoculture. The plants just began to fruit. The leaves were severely attacked by thrips. In this kecamatan they also grow yardlong bean, cucumber and red pepper cultivar Tampar (big and white fruits). The yardlong bean cultivar was Gleor with rather long pods and short harvesting period. Another

cultivar, Wingko, has short but abundant pods and long harvesting period.

In kecamatan Kalijambe we found cultivation of chilli pepper cultivar Longak. It is growing straight up and is mixed up in colour and fruit size (white/yellow/green). Monoculture crops were the best. They yielded heavy fruits, attacked by thrips. Here the farmers apply Curacron for spraying. The team suggested the farmers to select the good plants (heavy fruits, healthy and uniform) for coming season. Before, they didn't do that.

In desa Plupuh, some farmers produced seedlings of chilli pepper cultivar "Jemprit". The seeds were obtained from fruits bought in Solo. From 15 kg fruits of pepper 1-1.5 kg of seeds could be obtained being enough for 100-150 m² seedbed. These seedlings were sold to other farmers. The most important thing is that they know how to grow seeds. They need more technology to do that in order to produce good-quality seeds. Another thing faced by the farmer is seed storage, they must learn a new storage method. For the eggplant cultivar Kopek Hijau, the farmers already produce their own seeds.

In this village some farmers also cultivated amaranth, pulling type, mostly grown in homeyards. Seeds grown by themselves.

In kecamatan Sumberlawang the chilli pepper crop was heavily attacked by thrips. Two years ago the crops failed completely because of leafroll. Plant populations were also mixed like in other location. The seedlings were bought, because it was not easy to sow the seeds due to damping-off diseases. Price of seedlings was Rp. 200,- - Rp. 500,- per 50 seedlings. The problems were capital and water. They grew the crop on beds; planting distance 50 x 40 cm; plant height 90 cm (monoculture).

6. Kabupaten Boyolali; 8 November 1988

The team was accompanied by Pak Sukiati, head of Production Division Dinas Pertanian Boyolali on the trip across the kecamatan Ngemplak and Nogosari.

In desa Sindon, kecamatan Ngemplak, amaranth was planted in every homeyard to add to the family income. Many trees were cut off the homeyard for growing amaranth. The shallow water table of the area made it easy to get water for irrigation. The cultivar was Sekul; pulling type. The seeds obtained by themselves; harvesting 25 days after sowing. In rainy season they have problem with damping-off disease (75%). Cow manure was used. Sowing every week on 1/3 of the land. Seed production they did in the corner of the field. One plant could produce 1/2 cup = 60 grams. Fertilizer: Urea 36 kg/1000 m². The central market is Wangu.

In kecamatan Nogosari, the pepper crop faced the same problems as in other places namely leaf roll, called "Brintik". Also mixed population (white and green fruits) was the problem. The "Brintik" disease occurs in the dry season. Farmers produce their own seeds. Beside pepper we found cucumber (climbing), just flowering; more male than female flowers. Fruit had a white colour with black spines (cultivar Wuku). The growing season was February-April. May be they better introduce cultivar Super from West Java.

Eggplant cultivar Sili has long and green fruits. Planting distance was 80 x 70 cm. Had been harvested several times. Te height of the plant was 1 m.

EAST JAVA : KABUPATEN SIDOARJO, GRESIK, LAMONGAN
TUBAN & BOJONEGORO

NOVEMBER 9 - 12, 1988

Team III: Rachmat Kartapradja
Yenni Kusandriani
Yani Vos
Uun Sumpena

1. Kabupaten Sidoarjo: 11-12 November, 1988

Main guidance was provided by P. Hariyanto; Bina Program and Horticulturist of Dinas Pertanian Kabupaten Sidoarjo. Head of Dinas Pertanian Kabupaten Sidoarjo is P. Soetarto Koeswoehardjo. The locations visited were: desa Tilang, Kecamatan Wonoayu; desa Grobogan, Kecamatan Tulangan; desa Kebon Agung, Kecamatan Porong; desa Ganggang Panjang, Kecamatan Tanggul Angin; desa Cemeng Kaleng, Kecamatan Sidoarjo; desa Lebo, Kecamatan Sidoarjo; desa Wonosari, Kecamatan Krembung and desa Tambak Kalisogo, Kecamatan Jabon.

In desa Tilang we found 4 commodities grown by the farmers. These commodities were : Bayam (Amaranthus), caisim, Kangkung and Kacang panjang. They plant these commodities usually on a small scale: less than 1000 m² and for the local market. The variety grown by the farmers for kacang panjang was Usus Hijau. According to the information from the farmers' group the yield of kacang panjang is beneficial if the output is Rp. 80.000 within 20 days.

In kecamatan Tulangan we found that the farmers here grow Kangkung, Bayam Sawi asin, Sawi hijau (sawi Kembang) and Timun (Cucumber).

Of cucumber the farmers used cvs: Kretek Hijau and Wuku Putih. This Kretek Hijau is good in marketing while Wuku Putih is no longer used by the farmers. The most interesting commodity planted in large acreages is Kangkung. In this area the farmer can produce seed in large quantities.

At desa Kebon Agung we found dominantly eggplants. There are 2 cvs used by the farmers: Terong Kopek Putih and Terong Kopek Ungu. These two cultivars has been adapted to this area for long time. They produced the seeds by themselves. The first harvests amount 8 times minimal with an average yield of 2.5 ton per harvest. So there would be 20 ton per hectare.

The crop rotation is: eggplants-sugarcane-eggplant. We found Bayam, Kangkung, Kacang panjang and Sawi hijau as minor

crops. Kacang panjang cultivar grown by the farmers is Usus Hijau. While bayam, Kangkung, Sawi Kembang are a major crops; lombok and tomato are minor crops. The farmers grow lombok cvs rawit. Following information of Pak Suharda in Kecamatan Sidoarjo the farmers don't grow tomato because of insufficient water resources. Amaranth seed production usually is done during the dry season, even the seeds are sent to Balikpapan; Sawi and Kangkung seed as well.

The farmers know only: Timun (Cucumber) local; they prefer staked cucumber rather than unstaked cucumber. Usually the fruits are very small. In this area we also found terong biru and terong putih panjang although planted on a small scale. They grow timun (Cucumber) in May or Juni after sugarcane.

One cup of cucumber seed can yield 4 to 5 kwintal cucumbers. At this area we also found kacang panjang Usus hijau and Genjah Melati. This Genjah Melati has shorter pods compared to Usus hijau but gives good output compared to planting padi rice. We also found Timun Walo, Local tomato, and (in Krembung) Kacang panjang.

In Kecamatan Jabon with Pak Carik Abu (kacang panjang grower) we found commodities kacang panjang, cabe, terong and cabe rawit. According to the information the variety of cabe is Tampar Malam.

2. Kabupaten Gresik; 14- 15 November 1988.

Main guidance was provided by Kasi Programme Horticultura, Pak Mulyadi, Bambang Sutrisno, Ismiyatmo, Ibu Siti Nuryati and people of Dinas Pertanian; PPL and BPP.

At Kecamatan Waringinanom we found bawang merah (Shallot), cabe and terong which could be found mainly in the field in August and September.

Cabe we found dominantly in Kecamatan Driyorejo, while cucumber and kacang panjang were found dominantly in Kecamatan Menganti. The serious problem for cabe in almost all area is keriting and it has been so for 5 to 10 years and supposedly carried by varieties Tampar and Bengkulu. The symptoms found in the field were green bambo-like, keriting, whitish green and die off.

Plant rotation done by the farmers is: padi palawija-pada-padi-palawija.

In kecamatan Menganti we found two varieties of cucumbers green colour, and radish white. Cucumber acreage was about 500 ha with an average yield of 12 ton per hectare.

Eggplant planted in the areas is 19 hectares with an average yield of 8.5 ton per hectare.

Cabe rawit occupied 25 hectares with an average yield of 2.5 ton per hectare. Cabe rawit planted by the farmers were

cemprit yellowish white, small and long type and greenish white short type.

The problems faced by the farmers were similar to other areas, stunted growth and small leaves. We found this in desa Setro while wilting was found in desa Tudomas. The seed supply preferred by the farmer is: Jepang, during almost already one year (cucumber). They can get the seed from desa Kedamaian. There were two types of cucumber planted by the farmers; white colour fruit type and green colour fruit type.

We could also find terong (eggplant) lumut and putih varieties.

In desa Domas, Menganti we found tomato apel which was planted during dry season. This variety has many seeds. This tomato was also called tomat besar by the farmers. Other commodities we found in desa Domas were terong ulir; timun kecil (local); timun Jepang, kacang panjang, while in desa Laban we found tomat apel. In desa Setro we also found the same variety of Lombok (cemprit) and labu lodrong.

Planting system is surjan system; vegetables were planted on the hills and rice in the furrows.

In kecamatan Driyorejo according to the information of Pak Jumari (Dinas Pertanian), commodities which were dominantly planted by the farmers were: terong (eggplant), lombok (pepper) and tomato.

Unfortunately all those commodities are now still in the nursery, so we were not able to see the plants in the field. The major variety of Lombok planted by the farmers was also cemprit and partially lombok besar. The average yield per hectare was 32.5 quintal.

Second priority crop was eggplant, having light and green colour (local) with an average yield of more than 9 ton per hectare; according to the information they harvest 3 to 4 times. After the second or third harvest the plants were fertilized again and they can get 96.80 quintal per hectare. This eggplant was dominantly planted in desa Sumput and Tunjungan.

Marketing: local market.

In desa Banjar we also found a local tomato with the yield of 43 quintal per hectare.

The problems faced by the farmers for lombok, were lalat buah keriting (dark green leaf), no fruit setting and wilt. January to March in the period of serious attack by wilting.

At desa Petiken we found cabe rawit, kangkung, bayam (Amaranth), and kacang panjang. The area for cabe rawit can reach 1063 ha a year. Planting time from December to March. Beside those commodities the farmers also plant tomato which is usually planted in April.

At Kecamatan Waringinanom, according to Pak Erry (Dinas Pertanian) and Pak Suparlan (BPP) Lombok planted by the

farmers can reach 8000 ha in the rainy season. Two varieties planted by the farmers; lombok besar and lombok kecil (rawit). The average yield is 6 ton per hectare. Commodities found in kecamatan Waringinanom: cabe rawit, timun, kacang panjang, tomat kecil (local), tomat biasa and bawang merah. There are 3 types of cabe rawit: a. very small fruit type, b. small, long fruit type and c. small fat fruit type. Problems faced by the farmers on pepper were keriting and lalat buah (Dacus perogonion). Planting system: (a) monoculture and (b) mixed cropping usually with jagung (corn). Planting time January but because of this less fruits are yielded and fruit rotting starts easily because of too much rainfall. The farmers has also tried to plant tomato (berlian) but this variety was rejected. In general the average yields of each commodity are as follows :

<u>Commodity</u>	<u>Yield ton per ha</u>
1. Timun pendek (cucumber)	18-20
2. Tomat kecil (Small toamto)	5-8
3. Kacang panjang (hijau)	11-12
4. tomat biasa (besar)	3-4
5. Cabe rawit	8-10
6. Bawang merah local	10-15
7. Krai	-

3. Kabupaten Lamongan; 15 November 1988

Main guidance was provided by Pak Suprpto (Dinas Pertanian), Pak Jarwoto, Pak Maryono (Dinas), PPL and BPP Kecamatan. Horticulture has been developed during 5 years in Kabupaten Lamongan, water being the limiting factor.

The commodities in Kabupaten Lamongan were: Lombok (pepper), kacang panjang (yardlong beans), bayam (Amaranth), terong (eggplant), tomato and (small scale) shallot.

In kabupaten Lamongan we visited kecamatan Tikung Laren, and kecamatan Paceran.

In desa Tambakrejo kecamatan Tikung we found bawang merah (shallot) on a very small scale. In this area we found as well amaranthus (bayam) and kangkung, dominantly planted by the farmers on a small scale of 0.1 ha with an average yield of 2.5 kwintal per hectare per harvest. Harvesting interval was 10 days during 3 months.

In kecamatan Laren only the eastern part was used for horticultural crops, the western part having flooding problems.

In desa Gampang we found eggplants kopek putih panjang.

According to Pak Tasripin this commodity can be found in the field during March and April; usually farmers produce their own seeds. The seeds will be available from May till September.

In desa Blimbing, kecamatan Pacitan, we found a farmer, Pak Abdulmuhid, who grows cabe rawit seedlings for sale on a large scale. Mostly the farmers grow cabe rawit.

Other commodities we found are Timun and Kacang panjang planted on a small scale; also Krai and terong panjang. Fruit size is good enough for \pm 2 fruits per kg. The yield for kacang panjang Usus hijau can reach \pm 24 ton per ha; even though planted as a minor crop.

4. Kabupaten Tuban; 16-17 November 1988

Main guidance was provided by Pak Sadik (Dinas Pertanian Kabupaten Tuban), Pak Gunawan (Dinas), Pak Sumiadji (Dinas), Pak Asir, PPL and BPP and Ir. Sumarno.

In kabupaten Tuban we visited kecamatan Jenu, Kecamatan Padang, Kecamatan Bancar Bulu, Kecamatan Jatirogo and Kecamatan Kanduruan and Kecamatan Rengel.

In this area we found commodities: Cabe rawit, cabe plumpung and tampar. Cabe rawit was planted on a small scale and plompong and tampar on a large scale for Jakarta market; usually planted during January-February. Another pepper variety we found in Kecamatan Jenu was plintir, while kacang panjang (Usus hijau and putih) and eggplant (variety panjang besar and variety round) were also found in this area.

Of cabe variety Tampar there were two types namely Keriting kecil (smaller fruit size) and keriting besar (bigger fruit size). In desa Leran Wetan we found terong gelatik, kacang panjang (Usus hijau), terong besar, tomat and krai.

Pepper we found dominantly in almost the whole area of kecamatan Bancar Bulu (around desa Sumbungin, Bancar and Ngampel). In this area almost all the pepper is harvested during March and April. The age of seedlings usually planted is 2-3 months and the average yield amounts 4.8 ton per ha. Also in this area we found two types of pepper e.g. high plant type and lower plant type which was also called Tampar local. They only plant this commodity during the wet season. In desa Sembungin two types of pepper are usually planted by the farmers like tampar malam and Bengkulu. Maximum yield 6.3 ton per ha, minimum yield 3.5 ton per ha. Problems faced by the farmers: Keriting, virus.

In kecamatan Jatirogo we found many commodities such as pepper, tomato, bawang merah (variety Jombo), terong (round type), bayam petik, bayam cabut, kangkung darat, koro (var. singapura) and sawi hijau.

Ibu Sriwigati the head of SDN. Suian III provided us with seed of Lombok besar, terong besar, tomat sayur, kangkung darat and bayam cabut (from a student field). In desa Sidomukti, kecamatan Kanduruan, we found koro, Kacang panjang Usus, bawang merah (local), Krai, terong (local strains). All these commodities are planted on a small scale for consumption and local market.

In desa Pakuwon, kecamatan Rengel we found bayam, koro, kacang panjang, terong (panjang hijau), tomat buah and tomat sayur, timun and kecipir, planted on a small scale. The farmers planted bayam variety roji (bayam petik hijau). Variety Giti merah was less accepted by the farmers because of its red colour. Pepper (lombok) is usually grown together with tobacco. Of koro two varieties are grown: koro putih and koro hijau. Pepper varieties usually grown by the farmers are lombok rawit (small fruit); plompong (big fruits), and Tampar. Similar varieties we found in other locations.

5. Kabupaten Bojonegoro; 18-19 November 1988

Main guidance was provided by: Pak Haryanto (BPP); Pak Ciptadi (Kasi Produksi), Bina Program; Pak Satrisno (BPUP), Pak Sugianto (PPL) and Pak Zainan (Dinas).

Commodities dominantly planted in this area are Lombok besar, tomat, terong, kacang panjang and Timun.

In kabupaten Bojonegoro we visited kecamatan Kedungadem, Padangan, Malo, Tambakrejo and Ngraho.

In desa Panjang (kecamatan Kedung Adem) 6 commodities were found i.e. eggplant, lombok rawit, bayam petik hijau, koro seret, kacang panjang hijau and bawang merah (shallot).

Of terong Gelatik we found a small, round violet type and of cabe rawit a green small fruited one. Amaranthus (bayam) looked like Giti hijau. Koro seret is usually harvested green. Kacang panjang hijau showed good quality and an average yield of 3 ton per hectare.

The origin of bawang merah was desa Duwel. It has been planted by the farmers in Panjang for almost 5 years. This cultivar is called Tamji having a multiplication rate of 1 : 8.

The farmers usually plant this commodity in order to harvest in August; plant space 20 cm x 20 cm. In Kedung Adem the average yield is between 10-12 ton per hectare. Cabe rawit is usually planted as mixed cropping together with tobacco.

In kecamatan Malo we found commodities Krai, Kacang tunggak, timun, lombok, kacang panjang, tomat, terong and cabe rawit. In desa Ketilang kacang panjang dominated while

in desa Tanggir Lombok was dominantly planted; both lombok keriting and cabe rawit.

In desa Prangi, Kecamatan Padangan we found timun, kacang panjang, terong kopek hijau, tomat and cabe.

In desa Sidorejo we found krai, kacang panjang, bayam, kangkung darat, timun and cabe besar. Of timun (Cucumber) we heard in desa Prangi about timun kaku; unfortunately we were not able to see the plants in the field. We got lombok Plompong (cabe besar) and Tampar in desa Tabo. Plompong was similar to cabe besar in other areas. We were not able to get kangkung seeds from desa Sidorejo neither timun besar (local).

In desa Padangan we found bawang merah; this commodity was developed since two years. The origin of the seeds was :

a. Ngawi

b. Ampenan

Ampenan seems no longer pure. The average yield was 10.42 ton per hectare. According to the information of Pak Sono (Kontak Tani), desa Padangan, they usually plant bawang merah with crop rotation: padi-kedele-bawang merah.

Of krai we found a cultivar with long green fruits having pronounced stripes along the fruit. Tomat (ranti) and eggplant (Kopek hijau and Kopek ungu) were found in desa Tabo and Kedung respectively.

In kecamatan Malo we found cabe besar, cabe besar ex banjar (which is similar to Tampar), Timun krai, kacang tunggak, kacang panjang local, timun cabe rawit, kacang usus hijau, tomat besar, terong panjang hijau around desa Tanjir Ketilang and Trembes.

Cabe besar local, cabe kecil Japlak, terong kopek hijau putih, cabe rawit, terong kopek hijau and kacang panjang usus hijau are planted in kecamatan Ngraho and Tampakrejo around desa Sumberagung, Gadung and Payaman.

All these commodities are almost similar to the ones we found in other locations.

6. Cultural practices

In general, soil preparation is done two times followed by leveling and bedding. Handweeding is always done. Plant spaces varied between 20 cm and 50 cm in rows and 50 cm to 100 cm between rows depending on the commodity. Manure is given from 10 to 20 tons per hectare depending on commodity, while fertilization (using urea, TSP) is familiar for the farmers with 200 kg to 600 kg, mixed fertilizer. Spraying with fungicides and insecticides is done when there is an attack. Pesticides used are usually: Dursban, Elsan, Sevin, Curacron, Mipsin, Antracol, Dithane etc. with dosage of 0.2% to 0.3%.

7. Problem of hot pepper-growing

Kabupaten Gresik

In kabupaten Gresik a lot of cabe rawit is grown. The average yield of cabe rawit is about 8 ton/ha, of cabe merah about 6 ton/ha. The cabe rawit is harvested green if the price is good. If the price is low, then the farmers harvest the peppers red.

The hot peppers are grown in monoculture. The farmers don't use banana-leaf-pots in their nurseries, but they sow directly in the soil using a high plant density.

After the start of the rainy season the seedling are transplanted to the field. The dry season in East-Java is very long: the rainy season starts in November.

The farmers in this kabupaten sow the peppers already in August/September. The "seedlings" are therefore already very tall (about 50 cm) and sometimes flowering before they are transplanted to the field.

The result of these practices is that the roots get damaged; so the plants wilt easily after transplanting as we actually could see in the field. These plants will need a long time to recover and to become productive. In the nurseries visited there was damage of *Alternaria* leaf spot, sucking insects (mites, thrips) and rats.

By interviewing farmers and Dinas Pertanian we obtained information about problems with peppers in the field after transplanting. In Gresik the "keriting" disease, due to either virus or sucking insects (or both), is a severe problem.

Also wilting and *Dacus* fruitfly are mentioned as pepper problems.

Kabupaten Lamongan

In kabupaten Lamongan almost all pepper which is grown is cabe rawit. The yield is low: about 2 ton/ha, because the peppers are grown in mixed cropping systems. Usually peppers and corn are grown together, sometimes peppers and egg-plants or peppers and peanuts. The cabe rawit is harvested when red.

This cabe rawit is grown during one season only: here the crop is not perennial.

The nurseries are as in Gresik and the seedlings are transplanted to the field after 2 to 3 months.

In one nursery there were problems with damping-off caused by Phythium sp.

The problems in Lamongan with pepper-growing usually are the "keriting" disease, caused by thrips and/or virus, anthracnose, wilting and aphids. Also lack of water often limits the production of peppers.

In the field we saw cabe rawit attacked by virus, sucking insects (thrips, mites, aphids), Pseudococcus sp. and Fusarium wilt.

Kabupaten Tuban

In kabupaten Tuban most pepper is cabe besar. The yield is about 5 ton/ha. Peppers are usually grown together with corn. The farmers transplant the pepper seedlings after 1 to 3 months. In some fields pepper is grown the year round because this crop has a very high economical value. The problems consist of virus-diseases, aphids, thrips and/or mites and anthracnose.

The recent transplanted pepper-plants looked quite good. In a cabe rawit field we saw virus, thrips and cercospora leaf spot.

EAST JAVA : KOTAMADYA SURABAYA AND PROBOLINGGO; KABUPATEN
PROBOLINGGO, BONDOWOSO & JEMBER

NOVEMBER 17 - 28, 1988

TEAM I : Sudjoko Sahat
Prasodjo Sudomo
Dini Djuariah
Ahmad Hanafiah Gaos

Kotamadya Surabaya

Arrived at Kotamadya Surabaya Agricultural Office we were received by Ir. Endang Purwani, head of Service; Darmono, head of Production Division and Arismunandar, Technical Staff who accompanied us on the trip in Surabaya. At the headquarters we had a short discussion with the staff. According to them lowland vegetables in Kotamadya Surabaya are decreasing strongly because of building construction, factories and real estate activities. In this area a tomato trial is going on including promising varieties RATNA and INTAN. They want to try out other new crops such as garlic.

We visited Kecamatan Tandes, Desa Sukomanunggal. In one location about four hectares lowland vegetables were grown, but mainly only three crops namely amaranth, kangkung and caisin. The other, minor, crops were chilli pepper, cayene and tomato as insertion crops.

We found four cultivars of amaranths: PUTIH, HIJAU and MERAH while the other is the picking type KAKAP. Seed rate for one hectare is 30 kg and the yield about 20-26 ton. Harvesting time 20 days after planting. Most of the farmers grow own seeds. Unfortunately the price of the product was very low, only Rp. 10.00 for one bunce (100 gram). The picking amaranth was planted as insertion crop.

The kangkung cultivar is erect and has purple flowers. The farmers did not grow own seeds, however, they bought from Sidoarjo, neighbour-Kabupaten. The crops were looking good, clean, free from pests and diseases.

The caisin cultivar was late flowering, it was already 40 days old (date of harvesting) but only few plants started to flower. Seed rate per hectare was 3 kg. The main planting and harvesting time of caisin is from April to July.

One key farmer, Mr. Yadi Sudjoko, had ever tried tomato cultivars Ratna and Intan. Farmers mostly prefer Ratna

rather than Intan. According to him one plant of this variety yields 48 fruits or about 2 kg.

2. Kotamady and Kabupaten Probolinggo

Arrived in Kotamadya and Kabupaten Probolinggo Agriculture Office, we were received by Ir. Busido head of Service; Slamet, head of Production Division and Bambang, head of Horticulture Section. A little discussion was hold with Ir. Busido on lowland garlic. He said that he was not satisfied by the yield of lowland garlic, he ever tried. The yield was still low (less than one ton per hectare). Some farmers were already interested in growing lowland garlic, so they introduce the seed from Lesser Sunda.

We visited shallot market in Jati, Kotamadya Probolinggo. Principally there were 5 cultivars bulked in this market, i.e. PHILIPPINE, AMPENAN, THAILAND, FAUJI and IJO. At the moment FAUJI was absent. AMPENAN is the principal cultivar grown in this region. Cultivar IJO is mostly grown for off season. It is tolerant to rain, big bulbed with a darked skin colour. Cultivar PHILLIPINE has small and red-skinned bulbs; number of bulblets is only 5-6. The cultivar FAUJI originates from Pare, Kabupaten Kediri. Near the shallot market there was also a place where they collect chilli pepper. Most of the cultivars were white ones.

Later on we visited Kecamatan Wonosari, Kotamadya Probolinggo, Desa Jrebeng wetan is a place where they grow vegetable seeds. Along the country road we could see beds of bayam (amaranth), cayene, eggplant and others. In the planting season many farmers from the surroundings came to this place to buy the seedlings.

Then we visited Desa Kedopak and were received by the Chief of Village and Mantri Pertanian Mr. Tawi Sahari. Here we got some information about vegetable crops in this area. The yardlong bean they cultivate on the small dikes around rice-fields in the rainy season, while in the dry season it is grown as a monocrop in the field. The variety for the rainy season is a green pod type and for the dry season a white one. There were two cucumber cultivars. The first one has small fruits, called BB or IR. The second one has big fruits, called BETANG. The eggplant cultivar was KOPEK HIJAU, it has long and green fruits. Tomato is grown in the dry season (May-August). The variety widely grown in this area is MONEYMAKER. This variety was tried some years ago in Sumber Taman together with others e.g. AVRDC-15 (Intan) and GONDOL. Overhere MONEYMAKER is the only important cultivar. One of the farmers, Mr. Dumbahar planted 0,2 ha MONEYMAKER and he produced about 2.5 ton or about 13 ton per hectare. It could be harvested about 16 times.

Some vegetable crops were growing in the field, i.e. eggplant, chilli pepper, tomato and cucumber. The eggplant cultivar was LETEK, there are two types, a green and white one. A cultivar of chilli pepper is called MADURAN, the fruits being very small, very pungent and of a blue green colour. Mostly chilli pepper is planted together with shallots. They grow those two crops after rice. There were several tomato fields with the INTAN cultivar, but unfortunately it was full of virus so the crops turned yellow. Here they grow cucumbers on sticks, the cultivar IR being most popular. It has a medium long fruit and green brown colour. The other cultivar, called BATANG has bigger fruits and can be harvested 15 times.

We visited also Desa Jabres Wetan, where we could find several vegetables, namely amaranth, tomato, red pepper, chilli pepper and shallot. Unfortunately we could not find many crops in the field because the season was over. We found tomato cultivar RANTI with many small fruits. They grew amaranth (pulling type) in the homeyard. Every farmer had about 50 m² of amaranth. For this they need 100 gram seeds. The yield was about 700-750 bunches.

When visiting BPP Dringo, we were received by PPL. Following PPL the main crop in this area is shallot, it is concentrated in Desa Tamansari and Tegal Siwalan. The origin of shallots grown here is Banyu Anyar.

Subsequently we visited Kecamatan Dringo, Desa Ngepak. Three crops dominate in this area : chilli pepper, cayene and shallot. Mostly they grow chilli pepper of the white fruit type. Shallot cultivar IJO was found here. Its characters are as follows : stem straight up; the lower part of the stem dark blue; only few plants flowering.

In desa Sumber Bulu shallots also dominated, cultivar IJO being mostly grown. The cropping pattern in this area was as follows: the shallot crop was planted together with chilli pepper. The 2nd shallot crop is in monoculture.

There were not many vegetables grown in Kecamatan Tegalsiwalan, this season most of the farmers were growing corn.

When visiting Kecamatan Banyu Anyar, Desa Sumber Dami, we found chilli pepper, cayene and eggplant. Most of the eggplant was cultivar KOPEK HIJAU. There was about one hectare grown with a single crop of chilli pepper. The fruits did grow erect, were thick, medium long and of a white colour. Leaves were heavily attacked by TMU.

We visited also Desa Alas Sapi in the same Kecamatan where we found a nursery of chilli pepper. They grew seedlings for sale to other farmers. On an average they had about 50 m², where they did sow 300 gram seeds. Medium for seedbeds was sand, soil and stable manure. After 6 days NPK fertilizer was added.

When visiting Kecamatan Gading we were welcomed by Head of BPP Mr. Suyono and PPM Mr. Hendarto. This is the driest place in the area the only vegetable crop planted here being lima bean. There were two types of lima bean, KRATOK (Dolichos lablabe) and KOMAK (Mucuma sp). They grow these two crops mostly in January after corn harvest. KRATOK was planted on upland and KOMAK leaves were used for animal feed. The young pods of KOMAK can be consumed as vegetables, while the old seeds are used for other dishes. The main harvesting time of this crop is May, June, July.

3. Kabupaten Bondowoso

Arrived in Kabupaten Bondowoso Agricultural Office, we met with the Head of Service Ir. Sutanto and Head of Horticulture section, Mr. Suyono. Here we got some information about vegetables. There is a local cultivar of garlic called ALALANG that has special pungency (very strong). It has small bulbs but farmers like it, so they grow 60 hectares annually. This cultivar had adapted to local condition. Other crops widely cultivated were shallots and eggplant.

In Kecamatan Sukosari, WKBPP (Extension Service) Sumber Wringin (occupying two Kecamatans, Sukosari and Tlogosari) we were received by PPM, Mrs. Alfiah and several PPLS. Before we visited the Sukasari market we found some vegetables, mostly tomatoes. Here in this Kecamatan people ever tried a garlic demonstration plot where they produced 6 kg per 6 m² or 10 ton per hectare.

We visited one key farmer, Mr. Marlin, in Desa Sumbergading, Kecamatan Sukosari. This farmer grew several crops like garlic, shallot, eggplant and sawi.

Three cultivars of garlic had been planted i.e. LAYUR, LUMBU HIJAU and SHANGHAI. For the first time he bought the seeds from Batu, Malang. After the third generation they sold all bulbs and bought seeds of a new variety. There were also three cultivars of shallot i.e. THAILAND, AMPENAN and KRETEK. The way they selected shallots was choosing aggregates with many splits whereas for garlic they selected big bulbs with many clusters. From one hectare they could get 200 kg seeds either for garlic or shallot.

BANTENG is the most popular egg-plant cultivar in this area. It has very long fruits: 41 cm with petioles of 9 cm and of a green colour. It seems susceptible to wilt disease, especially if drainage is poor. One plant can produce 50-60 fruits in 8 months.

There was also sawi hijau (Jabung). It can flower in the field; green leaf colour, and the petiole is open just like radish.

4. Kabupaten Jember

Arrived at Jember Agricultural office, we were received by Ir. Darmadi, Head of the Service; Mr. Suyanto, Head of Horticulture Section; Mr. Djoko, Head of Production Division and Mr. Sari Alam, Technical Staff who accompanied us on the trip. Here we got information about Horticulture in the Jember area. Jember is an area that has good irrigation: 90% technical, 9% semitechnical and 1% rainfed. There was a trial with tomato Ratna and Intan but many farmers did grow local cultivar RANTI. This area has a big potential for yardlong bean. the other vegetables are chilli pepper and eggplant.

When we visited Kecamatan Jenggawah we were received by head of BPP, Sukirman and Mantri Pertanian, Budi Santoso. They informed us that in one area (Klompongan) there was an area of lowland cabbage : about 63 hectare, it is already three years going on; the planting time is August and September.

In the visited Desa Mangaran crops grown after rice are either tobacco or corn and then vegetables. The cropping pattern is padi-padi-palawija or padi-padi-tobacco. In this area they grow yardlong bean, eggplant, chilli pepper, cayene, cucumber. Of the yardlong bean, mostly they grow USUS HIJAU cultivar. It is long green podded. It can be harvested as much as 21 times from one crop. They grow also local variety MELATI, it has short pods and white colour. They produce their own seeds, from selected long pods.

Farmers in this area like to grow a black eggplant type. Two cultivars were observed, GAJAH, a long one, and PONDOK, the round one. Both of them have black fruits. We observed susceptibility to fruit rot. They harvested every 5 days and got 25-30 fruits per plant in total from one crop. According to farmers, if they grow in East-West direction, the crop is earlier compared to growing North-South.

For the chilli pepper they prefer short, big and white fruits. However one farmer did grow a smaller and green type being more profitable.

There were several types of cucumber in this area. One cultivar has small, short, round and light brown fruits, called cultivar GOGO another one has medium size, round and green fruits. The third one they call LALANG. It needs no sticks, while the others do, however, it needs mulching. It can be harvested 15 times and produces about 12,5 ton per hectare.

In visited Kecamatan Panti, Desa Serut, we were received by Mantri Pertanian, Pak Darmadi from whom we got some information about vegetable growing. The main crops in

this region were sawi kembang and pulling amaranth, while the other crops were : yardlong bean, cayene, chilli pepper, eggplant, winged bean and lowland cabbage. The crops were either monoculture or in rotation with rice.

In Desa Serut one farmer was growing Caisim and pulling-amaranth. He grew those two crops on 1,5 m wide beds covered with rice straw. After harvesting they kept selected plants (5-10) for seed production. The caisin cultivar has long and white petioles, round and green leaflets and late flowering. Amaranth cultivar has thin and white stems and was heavily attacked by insects. According to Mantri Pertanian there were three villages out of seven mainly growing those two crops, i.e. Serut, Suci and Kemiri.

Other farmers were growing yardlong bean cultivar USUS HIJAU. The pod were long and of a light green colour. Also they grew black fruit eggplant type, introduced from Japan and looking like a biannual crop. It was already 8 months old, however still bearing many fruits. We think that this is a hybrid, because, if they grow the second generation they do not get the same type. That is why these farmers never grow own seeds and always buy new packaged seeds. A farmer did grow cayene and chilli pepper; local cultivars. This farmer has a technique to get the fruits uniform red by putting ZA fertilizer at a rate of 250 kg per hectare 50 days after transplanting.

When we visited Kecamatan Umbulsari, we were received by Pak Sukoco, PPM; Pak Siswoyo, Mantri Pertanian and Pak Suyono, PPL. They informed us that three villages out of 6 were growing vegetables. Mostly they grow yardlong bean either green or white type. Here also they had ever tried promising tomato cultivar Intan; however, according to them the fruits were to small, so they did not like it.

In Desa Gunungsari most of the farmers grew yardlong bean. Several local cultivars were found. Cultivar LUMUT has long, big and green pods, but few pods per plant. Cultivar LANBOW has short, big and yellowish pods and many pods per plant. Cultivar SRIWET has medium long and light green pods with red-white seeds. Cultivar MLATI has short, small and white pods with white seeds. The yield of those cultivars ranges from 10-20 tons per hectare.

The other crops were eggplant (green long fruits), cayene and chilli pepper (cultivar EMPLING). The last one yielded 12 ton per hectare.

In Kecamatan Kalisat we met with Mantri Pertanian, Pak Yunus. He told us that in this area most of the farmers grow chilli pepper, cayene, eggplant, yardlong bean and some Sawi Kembang.

We visited a key farmer in Desa Plalangan. He grew chilli pepper; green fruit type. It has small fruits, green

EAST JAVA : KABUPATEN NGANJUK, KEDIRI, TULUNGAGUNG,
MALANG, PASURUAN & JOMBANG

DECEMBER 6-16, 1988

Team II: Anggoro Hadi Permadi
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1. Introduction

As a continuation of a survey that had been executed in West Java and Central Java provinces, from December 6 to 15, 1988 the survey continued to East Java Province. In this case team II visited Kabupaten Nganjuk, Kediri, Tulungagung, Malang, Pasuruan and Jombang.

In the field there was a little change of the intended programme. It was adapted as suggested by people of the regional Dinas Pertanian Offices.

2. Kabupaten Nganjuk; 7 December 1988

Desa Sukomoro, Kecamatan Sukomoro is a center of shallot production. In the dry season they grow 400 hectares, while in rainy season only 15-40 hectares. They grow cultivar Banji that originates from Pare. This cultivar is cultivated especially in the rainy season, because it needs much water. It has 5-12 splits, and a height of 50cm. Ampenan is the cultivar for the dry season. Both cultivars can be harvested, for consumption purposes, 60-65 days after planting with a yield of 14 ton per hectare. If it is used for seed production, time of harvest is delayed to 78-90 days after planting.

The planting time for the dry season is April to July and the yield 14 ton per hectare, while for the rainy season the planting time is in December and the yield 12 tons per hectare. Soil in this location is black and very sandy.

The way to dry the wet bulbs is as follows: harvesting, drying in the sun (the bulbs covered with their leaves), bunching them and drying again, then storage. Bulb quality in this place was better than in Brebes. If they cut the leaves and put the bulbs into bags they could be kept for 5 days, while in Brebes only two days.

Most of the farmers grow shallots in "Surjan" system. Width of furrow was 60cm, depth 70cm, width of beds was 2m. They did not apply stable manure. Fertilizer used: Urea 100 kg/ha; TSP 100-200 kg/ha and KCL 100-150 kw per hectare. These amounts were for basic fertilizer. Second applicaiton was given 15-20 days after planting with an amount of 200 kg Urea/ha and 100 kg ZA/ha. The third application was given 30-35 days after planting with an amount of 100 kg ZA/ha. Planting distance was 15 x 20cm.

Diseases that attacked the crop were called in local language "Blorok" and "Moller". Blorok was similar with "Otomatis" with leafspots, and appears after the rain starts. Protection had been done with 5 days interval spraying of Dithane, Antracol or Deconil. Pests appear especially in August and September, being "Ulat Grayak" or Army Worm.

Chilli pepper was cultivated in relay planting with shallot. This crop was transplanted 36 days after shallot planting. There were two cultivars of chilli pepper, Rawit Tampar (Cilete) and Cimpluk. Both of them originated from Kecamatan Gontang. Cilete has small fruits (5 cm), sharp end, is whitish, while Cimpluk has big fruits, short and blunt end and yellowish colour. For fertilizer the farmers gave a mixture of Urea, TSP and KCl, about one table spoon for one plant. They gave three times (at planting time, 15 days and 30 days after planting). They also applied foliar feeding: Sun foliar 20 cc/17 l. This foliar fertilizer was sprayed together with pesticides. The pesticides used were Gusadin, Sumithion and Monitor; with one week intervals.

First harvesting was 60 days after planting. At harvesting time the farmer also selected the plant for seed. they selected plants with 60cm height, uniform and straight.

We visited farmer Pak Nyono in desa Candirejo, kecamatan Loceret. Here several vegetables like cucumber, eggplant;, amaranth and yardlong bean were found.

Two kind of cucumber were cultivated. Timun Watang and Timun Wuku. Timun Watang had fruits of 20-26cm length being green with yellow stripes. Within 42 days after planting this cultivar could be harvested. The origin of the cultivar was from Nganjuk. The number of harvests was 13 times. Timun Wuku is a later variety. It could be harvested more then 42 days after planting. The fruits were more tasty. This cultivar could be harvested only for 7-8 times; introduced from Bandung 3 years ago.

The cucumber crop rotated with rice, soybean and yardlong bean. If they gave stable manure, harvesting could be expected at 42 days after planting, while without stable manure, it was 55 days after planting. Amount of stable manure was 3 tons per hectare. Fertilizer (mixed ZA-TSP-KCl): 300 kg per hectare.

Planting distance 60 x 1,5m. They put sticks to the plants. People here like the big fruits better than small ones, but it also depends on the way they consume the fruits (raw or cooked).

When visiting farmer Pak Soerias in desa Mungkung, Kecamatan Loceret we found eggplant. The cultivar had purple fruits and originates from kecamatan Ngronggot. There were also other fruit colours: green and white. However the purple fruits are preferable to the consumer. It contains more vitamins and tastes a little bit sweet. The seedlings were 40 days in the nursery. First harvest was 70 days after planting (with 2-3 days intervals). One or two fruits could be picked from one plant at each harvesting time. The plants could be kept for 7-12 months. Planting time is July.

There was also amaranth cultivar "Bayam Skull" that was introduced in 1957, originating from Nganjuk. The crop could be harvested 3 times. They gave Urea and Gandasil D as fertilizer. In home yards this crop could be kept the year round.

Another crop was yardlong bean. The cultivar had white pods. Flowering 35 days after planting. First harvesting was 50 days after planting, and the number of harvests was 10. Pod length was 37-40 cm; two pods per cluster.

3. Kabupaten Kediri; 8 December 1988.

In desa Memang, Kecamatan Pagu we found eggplant, yardlong bean and chilli pepper. The eggplant cultivar had blue fruits, the taste was sweet and the size long. They called this cultivar "Terung Pondoh". A problem is a root attacking disease.

Yardlong bean planted here is called "Kacang Sriwet". This cultivar has short pods and many pods per plant. This cultivar is drought tolerant; 3-5 pods per cluster. Another cultivar they called kacang Sumatera. It has green and long pods.

There were two cultivars of chilli pepper: Impling (storage tolerant) and Japlak (the fruits bigger than those of Impling). They had problems with thrips and flower drop.

In Desa Sidorejo, kecamatan Plemahan we found shallot cultivation. The cultivar was Bauji. Originated from Pare. This cultivar was productive and rain tolerant. Before they grew Bauji they had Kretek (till 1975). The yield of Bauji cultivar was 7 ton/ha dry bulbs. Disease called "Otomatis" attacked the crop 30 days after planting. Harvesting time for consumption was 60 days and for seeds 80 days after planting. This cultivar flowers in the field, and these flowers are cut. The cultivar preferable for the farmer is the one that have only a few number of splits.

In desa Mangunas, Kecamatan Kandat, we found yardlong bean cultivation. The Sriwet cultivar had pods of 30cm length. Another cultivar (Taiwan) was 50cm, its pods and the seeds look swollen up. Sriwet could be harvested 6 times. First harvest 45 days after planting (2 days interval).

We visited Pak Mustamar in desa Banyakan, kecamatan Grogol. Here also we found yardlong bean cultivar Sriwet. However, this cultivar was not preferable anymore because it was growing old quickly. They changed with cultivar Sumatera 3 years ago. This cultivar is earlier, although shorter than Sriwet.

4. Kabupaten Tulungagung; 11 December 1988.

Pak Mobin in desa Pinggirasari, Kecamatan Ngantru is a seed producer of eggplant, tomato and chilli pepper. In this area chilli pepper is preferable over hot pepper. They use chilli pepper as a vegetable.

Eggplant cultivar grown here is Banteng, originating from Kediri. Some advantages of this cultivar are: long live (could be harvested as much as 20 times, with one week interval) and responsive to fertilizer. From the 1 kg fruits they could obtain 50 gram seeds. First harvest was 3 months after planting and last harvest 3 months later.

A tomato cultivar was called IR. It was short or dwarf cultivar, originating from Malang. The fruits shape was oval.

There were two kinds of chilli pepper, the white one called Jiplek and the green one called Impling. Jiplek was introduced from Pare, being more productive than Impling. Impling is cultivated in the highland. They selected the healthy and normal plants for seed production.

Pak Yatimin was growing eggplants intercropped with red pepper. The eggplant cultivar was Terung biru. He got the seeds from another farmer. The crop was partially attacked by Fusarium and Epilachna. Since 1967 there were 37 seed producers in desa Pringgosari, Srikaton, Puring and Patanyar, however, the famous one was Pak Modin. Main planting season was April. The best yield ever reached was 42 ton/ha.

We visited BPP Wonorejo in Kecamatan Sumbergempol. The farmers in this area grow chilli pepper. There were three cultivars, green, white (Cimpling) and yellow (many fruits per plant). Yield was 2.7 ton/ha. They consumed the chilli pepper as a spice or vegetable (raw).

The tomato cultivar they grew tasted sweeter than Ratna and Intan (acid) and was seedless. If much water was given, the fruit did crack. One kg consisted of 20 fruits.

Information from farmer (Pak Saimun) was that Taiwan cultivar was white when unripe while local cultivar was green.

The farmer, Pak Saimun, also grew red peppers, locally called Lombok Abang. It was introduced from Pinggirsari. Planting time was October-November, the main problem being wilt disease.

There were two eggplant cultivars. Terung Ungu and Terung Pondoh. Terung Ungu is more preferable than Pondoh. Terung Pondoh has round and green fruits. This cultivar was adapted to Trenggalek location.

Three yardlong bean cultivar were observed. Usus was more preferable. Sspirit is more productive and is tolerant to storage. Cultivar Bangkok had swollen seeds.

5. Kabupaten Malang; 12 December 1988.

We visited the vegetable production area in desa Pucangsonga, Kecamatan Pakis. Here could be found amaranth, yardlong bean, red pepper, Caisim, Tomato and Eggplant.

There were two kind of amaranth, bayam cabut and bayam sekul. The crops could be harvested 25 days after planting. For seed production, the old plants (mature) were retransplanted to another place.

Yardlong bean was planted as intercrop between pepper, eggplant and corn. The crop was planted at the side of the beds. The cultivar was called Bleor: wide leaves, pod length 45-60cm, two pods per cluster, pods colour dark green, thick, round, 1cm diameter and bearing 16-21 seeds per pod.

A red pepper cultivar was Plumpung. It was introduced in 1960. Plants were straight, leaves were dark green; many fruits per plants and green when immature, big long (20-26cm), sharp end, uniform red colour when mature. Planting distance 30x40cm. Several pesticides and foliar fertilizer were used.

Caisin was easily flowering almost 90% of the crop. The crop is harvested 40 days after planting.

Tomato cultivar "Kelang" was introduced from Malang; indeterminate type, height 130-160 cm, sticks needed. Planting distance 40x40 cm or 50x30 cm. One kg of fruits consisted of 20 fruits. Tolerant to rain and cracking. Fruits were green shouldered and orange when mature. Yield was 14 tons per hectare.

Eggplant cultivar was "Siem". The fruit were long and green.

In desa Slamet, Kecamatan Tumpang they grew chilli pepper cultivar Letek, however, in general it was mixed population. Height of the plant 1-1,5 m. Cultivar Jiplak has green hot fruits. Problems were flower drop and thrips.

Chilli pepper was intercropped with eggplant. There were two cultivars of eggplant, Terong Siam and Terong Putih. Terong Siam had long green fruits, was sensitive to rain and of a good quality. Terong Putih is tolerant to rain.

Kacang panjang was intercropped with Caisin. Pods were cylindrical, dark green, 21 seeds per pod, 58-60 cm long with 2 pods per cluster.

In kecamatan Wajak they grow yardlong bean. Initially they cultivated "Bleor", however, since 1984 Bleor Super. The pods of Bleor super are dark green, cylindrical, 20-21 seeds per pod, 60-70 cm long, 8 mm diameter and 2 pods per cluster. This cultivar was introduced from Tlekung. Number of harvests is 15-20, interval 3 days. Yield was 15 ton per hectare. Another cultivar was called Kacang Turi. It was a mixed one; short pods and 15 seeds/pod.

6. Kabupaten Pasuruan; 13 December 1988

Pak Wahid in kecamatan Gondangwetan (a production centre of Kacang panjang) was growing Kacang Panjang Hijau that was introduced from Dinas Pertanian. This cultivar is more tasty. First harvest could be done 35-40 days after planting. Harvesting was done 15 times with intervals of 2 days. Cultivar Kacang panjang putih was mixed up. Cultivar No. 3028 was introduced from Pasarminggu. Pods were erect short and not preferable. The farmers store seeds in a glass-jar. They dry them every 2 weeks to avoid seed borer infection.

Another farmer, Pak Fadilah, grew cucumber. The cultivar was Watang. It has a bit light green fruits. First harvest 35-40 days after planting, harvesting 17 times, intervals 2 days. The farmer did grow with very wide distances because it is not easy to maintain this cultivar. The plant must be helped to climb the sticks.

In Desa Argosari, kecamatan Rejoso, the team found red pepper, cultivar Tampar Welut. This cultivar was introduced from Nganjuk. Now the farmers grow their own seeds. The type of plant was spreaded, fruits were violet and big (18 cm), 100 fruits per plant, rain tolerant.

In desa Rowogempol, kecamatan Lekok, we found eggplant cultivar Terong Pandan. The (green) fruits were uniform in size and shape. Yield average 16.7 ton/hectare. Planting time was May and the harvest from August to December.

In kecamatan Winagan the team found pepper cultivation. The cultivar was Tampar, however, it was hot pepper. It was a mixed cultivar, some plants had dark green fruits, while the others were light green. Shape and size of fruits were also variable. The crop could be harvested 5 times and the yield was 3 tons per hectare.

6. Kabupaten Jombang; 14 December 1988.

In Desa Kedungjati, Kecamatan Kabuh, we could find chilli pepper. There were two cultivars. First cultivar was called PB; plants were erect and dwarfy (50 cm height); fruits were round and yellow (as Jeplak); introduced from Kertonono 5 years ago. The other cultivar was Cilik, with plants of 1 meter height.

In Desa Sidokaton, kecamatan Kudu, we found amaranth cultivar "Raja", introduced from Mojoagung since 1975. Harvesting by cutting the young stem (5-10 cm from the surface), first harvesting was 40 days after planting.

Several cultivars of eggplant were found: Terong empol. This cultivar looks like cultivar Gelatik, with white flowers. Cultivar Terong Putih had round white fruits. Cultivar Terong Ijo Panjang had white flowers and cultivar Kopek Lonjong had purple ones. They had problems with wilt disease and pest (thrips).

In desa Bendungan, kecamatan Kudi, several tomato cultivars were found, e.g. cultivar Apel (cultivated since 1985; introduced from Malang). This cultivar is tolerant to rain, no cracking and thick fleshed. Another cultivar is "Pleret", having gradually maturing fruits.

In desa Sidokaton we found kangkung. This cultivar was introduced from Kediri. It is a mixed cultivar, some plants had green stems and the rest violet ones. Harvesting by cutting, three times before flowering. First harvesting was one month after planting. Another cultivar was genjah. It has purple stems and narrow leaves.

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