

COLLECTION OF LOCAL LOWLAND VEGETABLE STRAINS
IN THE NORTH SUMATERA PROVINCE

by:

Q. P. van der Meer
Sudjoko Sahat

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Introduction

Extensive collection has been carried out on Java, Madura, Bali and Lombok. The results have been summarized in LEHRI Internal Communication 11. The collected material is mainly used as working collection for selection and breeding.

Two gaps still remained to be filled, namely (a) collection from other Indonesian main vegetable growing areas and (b) exchange of vegetable germplasm with comparable tropical countries like The Philippines and Malaysia.

The first gap could be filled to a large extent by collection in the North Sumatera Province (capital: Medan) which is by far the main vegetable producing province of Sumatera (see under Statistics).

To explore/exploit its rich genetic resources the authors visited North Sumatera from 24 till 29 July 1990. Information and guidance was asked from the Dinas Pertanian Propinsi and D.P. Kabupaten. We appreciate very much the cooperation of Ir. Maas Lubis (D.P. Propinsi, who accompanied us every day) and of the functionaries from Kabupaten Langkat, Deli Serdang and Simalungun who accompanied us on 25, 26 and 27 July respectively.

Statistics

The following data, originating from the Central Bureau for Statistics, could be provided by the LEHRI department of Agro-economy (Table 1).

Table 1. Vegetable acreages (ha) in the North Sumatera Province (1988), in comparison with Java

Commodity	North Sumatera	Ranking *	Java
Shallots	3.601	1	45.974
Garlic	960	1	11.887
Hot peppers	19.099	1	206.726
Tomatoes	3.695	2	26.647
Egg plants	6.604	1	42.861
Cucumbers	3.459	3	51.859
Yardlong bean	11.475	1	120.250
Sawi	1.883	2	18.372

* 1: North Sumatera has the highest production of all 8 provinces on Sumatera.

8: North Sumatera has the lowest production of all 8 provinces on Sumatera.

The statistical data for the different Kabupaten were obtained from the Dinas Pertanian Provinsi (Table 2).

It is remarkable and unexplainable that the total crop acreages of Table 1 and Table 2 differ strongly, especially those of yardlong beans and peppers.

Because of the limited time available only the Kabupaten Langkat, Deli Serdang, Tapanuli Utara (Samosir) and Karo (Berastagi, Kabanjahe) were visited.

Table 2. Vegetable acreages in the Kabupaten of the North Sumatera Prvince (1988)

Province	Hot peppers	Garlic	Shallots	Sawi	Tomatoes	Eggplants	Yardlong bean	Cucumber
Medan	138	-	-	293	-	130	146	160
Langkat	546	-	-	-	-	460	58	289
Deli Serdang	1.332	-	32	277	33	844	1.161	526
Simalungun	879	245	865	59	696	144	105	121
Karo	1.693	185	917	787	815	-	-	-
Asahan	139	-	-	78	-	90	55	102
Lab. Batu	114	-	-	-	-	79	68	70
Tapanuli Utara	1.851	388	1.481	349	126	97	25	49
Tapanuli Tengah	199	-	-	-	-	136	37	83
Tapanuli Selatan	2.230	-	73	162	398	687	113	396
Nias	288	-	-	-	-	110	10	30
Dairi	355	117	165	-	72	-	3	-
T. Tinggi	5	-	-	-	-	18	2	17
Definitively planted	9.769	935	3.533	2.005	2.140	2.795		1.823
Definitively harvested :	14.856	934	3.713	1.935	2.662	5.340	1.783	2.512
Agro-economic data :	19.099	960	3.601	1.883	3.695	6.604	11.475	3.459

Kabupaten Langkat; 25/7/1990

At the Dinas Pertanian Kabupaten in Binjai the following acreages could be given:

Yardlong bean : 82 ha
 Peppers : 98 ha
 Eggplants : 100 ha
 Cucumbers : 9 ha

These acreages differ strongly and unexplainable from those of Table 2.

We visited (together with Mr. Paiman Parmono and Mr. Abdul Kadir) Kecamatan Sei Bingai. Here rather many farmers were growing papaya intercropped with eggplants. Unfortunately the local BPP was closed so that these farmers could not be visited.

Later on we met with 2 functionaries of the local PPL and could visit some farmers' fields, where we did see peppers (keriting), yardlong bean, cucumbers and snap beans.

The yardlong bean variety (Taiwan) was a new one (introduced via seed shops) with rather thin, rather dark green, rather long and rather fleshy pods. The cucumber strain was uniform with rather green fruits of a normal size having a remarkable good taste, a hard texture and a good keeping quality.

A remarkable finding was an apparently very good lowland snapbean variety.

In Toko Usaha Tani, Jl. Pajak Ikan 8, Binjai, seeds of many local strains could be bought. This is a well known seed source for many local farmers.

Some more local strains could be bought from the following 2 seed shops in Medan:

Tani Djaja, Pusat Pasar 168, Medan

Jaya Tani, Pusat Pasar 194, Medan

On cultural practices the following data were collected: The unit area they use here is called "rante". One rante is equivalent with 400 m². One farmer had about 5 rante (2000 m²) lowland snap beans; he used 2.5 kg seed for that area, spacing 70 cm x 25 cm;

fertilizer: ZA 30 kg, TSP 10 kg, KCl 5 kg for each rante. They prefer applying ZA rather than Urea.

An other farmer cultivated yardlong bean, cucumber and cayenne peppers. Cultural practices are was follows:

1. Yardlong bean (based on one Rante): needed seeds 1 kg, fertilizer 15 kg of NPK.
2. Cayenne peppers: 300 kg stable manure, 20 grams of seeds, 20 kg of NPK (4 times application), planting distance 40 cm x 80 cm.
3. Cucumber : 200 grams of seeds; NPK was given via irrigation. Application: 2-4 times during the growing periode, totally about 20 kg.

Kabupaten Deli Serdang and Karo (Berastagi), 26/7/1990

We met with Ir. A.L. Butar Butar, head of the Dinas Pertanian Kabupaten. He, in deliberation with his staff, recommended a visit to kecamatan Namurambe. In this region vegetables are grown the year round in rotation with padi.

Ir. Butar Butar asked us emphatically to send him seeds of LEHRI promising local strains.

Mr. Jana Manik accompanied us to Namurambe and Deli Tua.

In Namurambe we found a rather large and compact area (ca 50 ha ?) with permanent vegetable growing, namely eggplants, peppers and yardlong beans. Moreover some farmers had small-scale trials with garlic (Lumbu Putih, planting material from Yogya), the growth being very poor but nevertheless some plants showing relatively strong bulbing.

Local types of eggplants are Telunjuk Hijau, Kopek Ungu, Bola Ungu and Bulat Kecil. Of peppers are grown cabe keriting/panjang and cabe lurus/lombok/gembung.

The old variety of yardlong bean is Penang but recently this was substituted by Taiwan, which is more productive and of a better quality.

The most principle complaint of the farmers was the poor keepability of the seeds. They did give up storing them and were now always using freshly harvested seeds, obtained from colleagues or seedshops.

In Deli Tua and Pancur Batu we visited 4 local seed shops in each of which we could buy some local vegetable strains.

Addresses:

Jl. Besar 14 B (Toko 17 Agustus), Deli Tua

Jl. Besar 20 B, Deli Tua

Jl. Teratai 93 (Toko Rata Sinuhaji), Deli Tua

Jl. Gen. Jamin Ginting 239 (Toko Rata Sinuhaji) Pancur Batu.

In Daulu (highland, near Berastagi) we found (anonymous) local garlic and vegetatively propagated leeks (prei anak). This leek is more productive than European leek from seeds and is exported to Singapore.

In Berastagi we visited the Sub Balai Hortikultura. Here activities are still on a low level. Some research is done on sugar peas and other vegetable export commodities.

From Ir. Maas we heard that this Sub Balai did a meritorious job by developing crop-specific cardboard boxes for export of vegetables (cauliflower, carrots, prei anak, cabbage, potatoes). Unfortunately we could not visit Bibit Baru because an invitation via the Sub Balai reached us too late in the afternoon.

On cultural practices the following data were collected:

The area of vegetable in Namurambe is under irrigation so the cropping pattern was rice-rice-vegetables. They apply always chicken manure for basic fertilization. They give 10 kg of chicken manure per Rante each month, especially for pepper and aubergine. They give also fertilizer: mixture of Urea, TSP and KCl (25 kg per Rante, once a month).

Kabupaten Simalungun (capital Pematang Siantar), 27/7/1990

We visited the Dinas Pertanian Kabupaten and met with Mr. K.W. Purba, head of office, and Mr. Sinaga of Bina Produksi. They accompanied us to the kecamatan Tapiandolok and Siantar.

In Tapiandolok a large acreage (ca 12 ha) of leafy vegetables is grown, namely Amaranthus and Caisim (sawi manis). Of amaranthus two strains are used: light green and dark green. In the rainy season this crop can not be grown because of diseases, namely Albugo.

In kecamatan Siantar we found again amaranthus and caisim. Of the first crop 3 varieties were grown: bayam hijau, bayam kol (light green) and bayam cimahi (obtained from relatives in Cimahi). In both crops problems were faced with caterpillars.

In kecamatan Siantar we found eggplants, yardlong bean, cucumber and pulling kangkung (kangkung darat). The eggplants were of a relatively long green-finger type (Telunjuk Hijau), somewhat contaminated with Kopek Ungu.

The yardlong beans were dark green, medium long and of a fleshy texture.

Cucumbers were a normal Indonesian type : rather short with a rather light green skin colour.

Of kangkung darat seeds could be grown within 3 months.

Normally peppers are grown after padi.

Some seed samples of local vegetable were bought in Toko J. Bintang Pardede, Jl. Iman Bonjol 3A (dekat R. Sakit Umum) Pemantang Siantar.

The following cultural practices data were collected:

- For amaranth the seed rate was 250 gram per rante (400 m²).

Seeds were mixed with sand and broadcasted on beds.

Before that the beds were prepared and provided with chicken manure. Ten days after sowing the seedlings were sprinkled with an Urea solution (10 gram/10 lt water). Once the crop is ~~sprayed~~ with Tiodant and Antracol (0.1%). 21 days after sowing the crop can be harvested. For one rante (400 m²) they use 5 kg urea, 300 kg chicken manure and about 100 cc of pesticides.

- For eggplant they are giving about 100 kg chicken manure per rante. Fertilizer is given once a month: about 20 grams of ~~mixed~~ Urea + TSP + KCl per plant. As pesticide they use SERPA once a week.

- For cucumber about 0.5 kg chicken manure is given per plant. Fertilizer: 20 grams of mixed NPK and TSP per plant. The crop could be harvested 40 days after sowing; harvesting intervals: one or two days.

Samosir, 28/7/1990

After crossing lake Toba from Perapat we followed the coast of Samosir (from Temok) northward and left the island via the bridge in kecamatan Pangururan.

Samosir is an important region for shallots. Two varieties were found, only indicated as bawang merah and bawang goreng. Bawang merah is (or was) transported on a large scale to Brebes. Very probably in Brebes it is (or was) sold under the name of Medan. This material does (did) not originate from Medan because hardly any shallots are grown in kabupaten Medan (Table 2).

Also grown on Samosir are garlic (bawang putih) and rakkyo (bawang Batak). Other vegetables seem to be grown only sporadically, only some peppers and tomatoes were seen.

Planting material of garlic and shallots and some seed samples were bought from Mr. Antonius Sitanggang in Tanjung Bunga kec. Pangururan, just after leaving Samosir. Shortly after leaving Tanjung Bunga we passed some areas with extensive shallot and garlic growing. Because of lack of time we could not visit these places.

On our way back to Medan we passed Kabanjahe and (again) Berastagi. In a seed shop in Kabanjahe (Makmur Tani, Jl. Ltn. Mumah Purba

No.59) still rather many local strains could be bought but in 5 seed shops in Berastagi only imported seeds were sold. According to Ir. Maas about 15 years ago still many local strains were available in these shops. This demonstrates clearly that local strains past their prime and that it is (was) high time to collect as many of them as possible.

The following data on cultural practices were collected:

In the Samosir area farmers mostly grow shallot on dry land. They grow the shallots on beds like in Java, but the differences are that the beds are not so high and are not flat. They are low at the sides and high in the middle. the planting distances are about 10 cm x 10 cm (or 15) cm. For one rante (400 m²) they use 12 kg of bulbs. They give mixed fertilizer (Urea + TSP + KCl): about 10 grams per plant (-hole). Besides this they supply also foliar feeding with Bayfolan.

Promising Local Strains

During the trip impressions were collected on the direct value of (some) accessions for practice. Such material should be given preference in preliminary variety trials. We suggest to give such preference to the following accessions:

<u>Accessions</u>	<u>LV</u>	<u>Superior characters</u>
Lowland snap beans from Binjai	2823	Good quality, good production
Cucumbers from Binjai	2814	Excellent taste, long shelflife
Eggplants, Telunjuk f. Siantar	2811,2812, 2809,2804,	New Type, asked by supermarkets
Yardlong bean: Taiwan from Binjai	2785,2786,	High quality, high production
Yardlong beans from Siantar	2789,2790	Extra fleshy pods
Tomato from Pangururan	?	Excellent size and shape

Collected accessions

An overview of the collected material is given in Table 3. The accessions have been registered under the LV numbers 2751-1823.

Table 3. Lowland vegetable accessions collected from North Sumatera

<u>Crop</u>	<u>No. of acc.</u>	<u>Quantity (gram)</u>	<u>Origin of Kabupaten</u>
1. Garlic	4	1240	Tanah Karo, Tapanuli Utara
2. Shallot	3	1900	Tapanuli Utara
3. Amaranth, pulling	8	450	Binjai, Medan, Deli Serdang, Simalungun, Tanah Karo
4. Amaranth, picking	1	100	Binjai
5. Kangkung, pulling	5	500	Binjai, Medan, Deli Serdang, Simalungun
6. Cayenne	5	231	Langkat, Binjai, Deli Serdang, Tapanuli Utara, Dairi
7. Chilies	2	1,2	Tapanuli Utara
8. Yardlong bean	13	1530	Binjai, Medan, Deli Serdang, Pematang Siantar, Simalungun
9. Caisim	11	695	Binjai, Medan, Simalungun, Pematang Siantar, Tanah Karo
10. Eggplant	11	605	Langkat, Binjai, Medan, Deli Serdang, Simalungun, Tapanuli Utara
11. Cucumber	6	505	Binjai, Medan, Deli Serdang, Pematang Siantar, Simalungun
12. Tomato	3	0,4	Tapanuli Utara, Deli Serdang
13. Snap bean	1	100	Binjai
Total	73		

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