

NEW CORN VARIETIES

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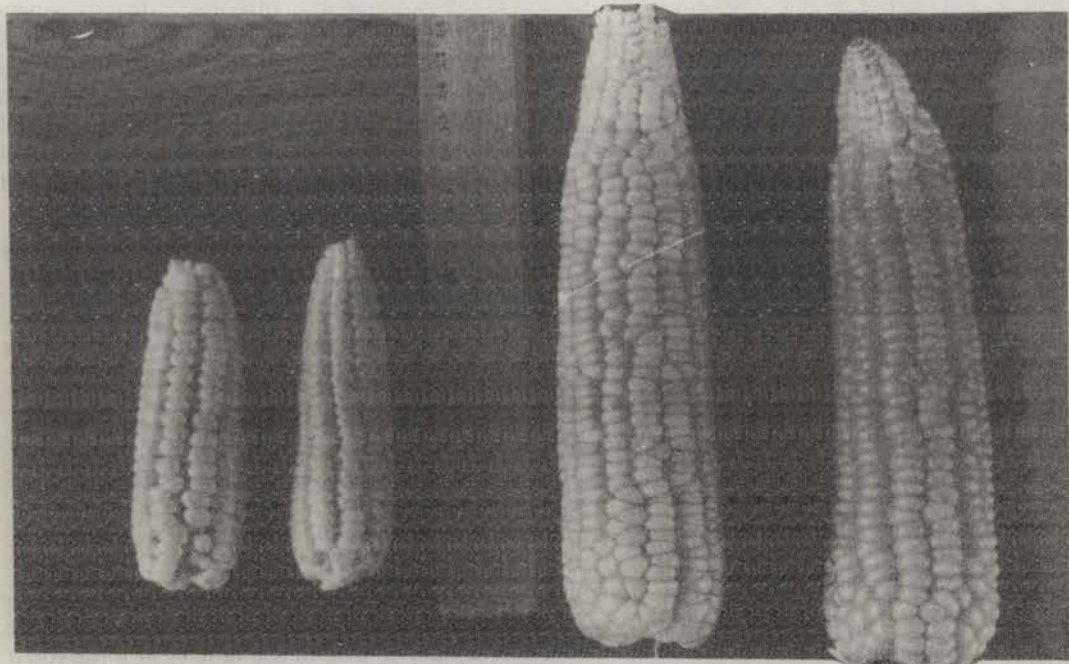
Local varieties of corn (or maize) in Papua New Guinea are often poor and do not yield a large cob. Various people have brought in corn from Australia and other countries, trying to find a better variety for Papua New Guinean conditions. Some of these have been better than the local varieties and some have not. Many of the varieties of corn seed sold in shops are not very good ones. In 1970 DASf started a programme of bringing in corn from all around the world and trying it out. This work was started at Keravat near Rabaul and has also been done in the Markham Valley, at Kuk near Mount Hagen and at Aiyura near Kainantu. The Keravat work has been completed and DASf can now recommend and provide seed of corn varieties that are very much better than local ones. The work is continuing in the Markham Valley and in the highlands.

At Keravat over 50 varieties have been introduced and tried in five trials. These came from 13 countries as far away as the Ivory

Coast, Thailand, Australia and Brazil. The seed came via Queensland and was kindly sent to Papua New Guinea by the Queensland Department of Primary Industries. Varieties are recommended because they are high-yielding and are more resistant to rusts than other varieties.

Corn varieties are either hybrids or open-pollinated types, and we have been trying both types. Hybrids often yield better than the open-pollinated ones. However they have the disadvantage that seed should not be replanted for a second crop. If seed is replanted, the next crop will not yield well. New seed must be bought and planted for every crop. Hybrids are the best sort of corn for farmers who can obtain new seed supplies for every crop, such as plantations and schools, but they are not generally suitable for village farmers.

Open-pollinated corn does not yield quite as well as the hybrids, but the seed can be replanted for each new crop. This is the best



The two small cobs on the left are from the local Gazelle Peninsula variety. The two large cobs on the right are from one of the new open-pollinated varieties being introduced and distributed by DASf.

sort of corn for village farmers, and probably most farmers in Papua New Guinea.

We have also brought in and tried other sorts of corn such as high lysine types. High lysine corn has a lot of lysine in it. Lysine is one part of protein and man must eat lysine to remain healthy. High lysine corn could be very useful for people who eat a lot of corn and who do not eat enough protein. However none of this type has done well and we are not distributing them.

The table gives yields of some of the varieties in the last Keravat trial. From the table it can be seen that most of the introduced varieties are much better than local Papua New Guinean ones.

Corn Yields in Variety Trial No. 5 at Keravat

Variety	Type	Origin	Yield kg/ha
KTW 221	hybrid	Queensland	7 225
KTW 239	hybrid	Queensland	5 658
Q 12508	open-pollinated	Mexico	5 604
Q 12544	open-pollinated	Mexico	5 354
QK 217	hybrid	Queensland	5 060
Q 12504	open-pollinated	Mexico	4 950
Q 12152	open-pollinated	Brazil	4 907
Q 12505	open-pollinated	Thailand	3 432
Q 10859	open-pollinated, high lysine	Thailand	2 591
Kapogere	open-pollinated	Papua	2 086
Local Gazelle	open-pollinated	New Britain	1 887

RECOMMENDED VARIETIES

Hybrids. QK 217 is the best of the commercially available hybrids evaluated at Keravat. It was bred and produced on the Atherton Tableland of North Queensland. It has done well in trials at Keravat and also at Aiyura, Wabag, and Muralumi in the Markham Valley. Seed can be purchased in 25 kg packs from—

The Manager,
Atherton Tableland Maize Marketing
Board,
P.O. Box 19,
Atherton, Qld 4883,
Australia.

Generally we have found the Atherton hybrids to be the best for Keravat conditions. They are resistant to tropical rust and have proved to be high-yielding. Unfortunately, there are other better-yielding Atherton hybrids, such as KTW 221 and 239, which are not commercially available.

Hybrid varieties available change from year to year. Varieties most suited to North Queensland conditions are not necessarily the best in Papua New Guinea, so that new releases from Queensland may not be better than the present recommendations for Papua New Guinea.

Maize seed from Australia or New Zealand can be imported without a permit, but importation from other countries is not allowed.

Open-pollinated varieties. Four open-pollinated varieties are recommended. They are being distributed free from Keravat. They are Q 12508, Q 12544 and Q 12504 from Mexico, and Q 12152 from Brazil. This last variety has done well in trials at Keravat and also in the Markham Valley. It was the best variety in two of the trials.

Seed of these varieties may be obtained by writing to—

The Agronomist-in-charge,
Lowlands Agricultural Experiment
Station,
Keravat,
East New Britain Province.

The quantity of seed required should be stated.

Growing high-yielding corn

These high-yielding corn varieties will do best in fertile soil. Fertilization may be necessary to obtain the best yield if the soil is poor. *If fertilizer is needed, apply urea at the rate of two bags (100 kg) per hectare.* This

71,400 plots/ha
would be enough in most places, but phosphate fertilizer may be needed, particularly in the highlands.

Provided rainfall during the life of the crop is expected to be enough, plant the seed fairly closely, say in rows 70 cm apart at 20 cm within the rows. At this rate about 17 kg of seed is needed per hectare. (In dry areas, such as around Port Moresby, it may be advisable to plant the corn at slightly wider spacings.) Corn can also be interplanted with other crops such as sweet potato. However if the corn plants are too far apart, the seed from the first crop will not give such a good second crop when planted again. This is because the corn plants were not planted close enough to fertilize each other. This is probably one of the reasons that local corn is poor.

The recommended varieties produce hard seed in 14 to 15 weeks which is a little longer than the existing varieties. Corn to be used for eating will be ready a few weeks earlier than this.

When farmers have grown one crop of the new corn varieties, they can then carry out a

further selection themselves to get the best variety for local conditions. The farmer should choose only the best cobs from his crop to provide seed for replanting. If seed from a few plants only is used, the following crop will not be as good. It is better to take seed for replanting from a mixture of seed from at least 100 good cobs. In this way the variability of the variety will be kept and good crops can be had from many plantings.

Most village farmers save only a few cobs to give seed for replanting, so their yields will decline slowly over a number of years. It may be necessary for further distribution of seed to be made by DASF extension officers every few years.

It is not possible for us to try out the new varieties in every province, so if you grow one of the new varieties, we would appreciate it if you would send us a report on how the variety grew. In this way we can find out the best variety for every area.

Most of the varieties evaluated at Keravat were supplied by the Queensland Department of Primary Industries Research Station at Kairi in north Queensland. Their assistance is gratefully acknowledged.

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NEED TO BUILD UP COFFEE PRODUCTION

Under the terms of the recently negotiated International Coffee Agreement, there is a real likelihood of quotas on exports of coffee to member importing countries being reintroduced during the life of the agreement.

There is a need for a national effort now to produce as much coffee as possible for export over the next two years, in order to increase Papua New Guinea's quota entitlement under the terms of the new agreement.

All smallholders should be aware of the necessity to maximize production from their

existing holdings. Officers of the Department of Agriculture, Stock and Fisheries are available to give advice and assistance whenever requested.

The smallholder will benefit in two ways by sustained effort now: firstly by obtaining a high price for his parchment coffee produced and sold during the next two seasons; secondly by maximizing production now Papua New Guinea will be able to sell a higher proportion of her crop overseas if and when quotas are reintroduced.