MAIZE VARIETY RECOMMENDATION FOR LOWLAND PAPUA NEW GUINEA

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INTRODUCTION

The area under maize in the Markham Valley is expected to increase to 1000 ha in the 1987 season. Another 400 ha is expected to be planted in the Port Moresby area.

This article describes the results of research designed to select superior varieties of maize for Papua New Guinea.

Between 1975 and 1977, QK 394 was selected from variety trials in the Markham Valley. Later, QK 394 was replaced by QK 394A which has a slightly different male parent. Further selection work was conducted at Laloki Plant Quarantine and Horticultural Research Station between 1981 and 1984.

This research programme aimed to select varieties superior to QK 394A.

IMPROVED VARIETIES

Yellow Hybrids

The varieties QK 394 (now replaced by QK 394A) and QK 217 were the recommended varieties for the Markham Valley in 1977. QK 217 is no longer available. QK 394A is produced on the Atherton Tableland in North Queensland especially for the PNG market. Although it has given consistently high yields it has a number of disadvantages. It has large flat seeds which make it difficult to plant with plate planters. It is very tall which makes it susceptible to lodging (falling over) and it is susceptible to tropical rust and downy mildew.

Other QK hybrids which have been successfully grown are QK 657A and QK 694. QK 694 is no longer available. QK 657A has given yields similar to that recorded for QK 394A but does not have large seeds. QK 657A is also a tall variety and susceptible to downy mildew and tropical rust. A new hybrid from the Atherton Tableland, QK 958, has given better yields than QK 657A and will be available for the 1987 season. Another new hybrid (KTW 976) from Kairi Research Station on the Atherton Tableland in North Queensland will be available at the end of 1988. It was included in the most recent trial at Mutzing and performed very well.

In 1982 Hycorn 9 from Pacific Seeds was first grown under PNG conditions. This hybrid was developed in the Philippines and Thailand.

White Hybrids

A number of white hybrids from Kairi were tested at Laloki and some of these appear to have good potential under PNG conditions. They are high yielding and show good resistance to tropical rust. The feed mills in Lae do not have any preference for yellow or white grained hybrids. The white grained hybrids can also be used to make grits for human consumption. Although none of the white grained hybrids are available commercially as yet, with further testing and a proven demand, seed of WTW 1 could become available in the next year or two.

Open Pollinated Varieties

Metro and Suwan C1 are the only open pollinated maize varieties available at the present time. Further introductions of Suwan C4 and C5 from Thailand are needed as it is likely that these varieties have improved resistance to downy mildew and tropical rust. Only a small area of open pollinated maize is grown commercially as the hybrid varieties give higher yields and seed is more easily obtained in large quantities.

MAIZE YIELDS

The table below shows yields recorded in a trial conducted at Mutzing in 1986. The highest yield recorded in the trial was 7.8 t/ha.

Variety	Source	Grain Colour	Yield (t/ha)
KTW 976	Kairi	yellow	7.1
WTW 1	Kairi	white	6.0
X304C	Pioneer	yellow	5.7
QK 394A	Kairi	yellow	5.1
QK 958	Kairi	yellow	4.3
QK 657A	Kairi	yellow	4.2
Hycorn 9	Pacific	yellow	4.0
Suwan 1	DPI	yellow	1.3

DISEASES

Downy mildew causes severe losses each year especially late in the planting season when rainfall is high. It affects the plants soon after germination and the only solution then is to replant the infected area. Downy mildew can be controlled by treating the seed with metalaxyl (Apron 350 SD). All seed from the Atherton Tableland is to be treated with metalaxyl for the 1987 season. It is presumed that Hycorn 9 has always been treated with metalaxyl. If seed has not been treated then it can be dusted with Apron 350 SD at the rate of 4g a.i./kg seed.

Tropical rust only occasionally causes yield losses. Usually it does not infect a crop until late in the growing season. However, it can cause severe losses if it infects the crop early in the growing season. The only means of control is to use resistant varieties.

RECOMMENDATIONS FOR COMMERCIAL SOWINGS

Varieties

Hybrids - QK 394A, QK 657A, QK 958, Hycorn 9

Open pollinated - Metro, Suwan C1

Sowing Rates

Hybrid 17 kg/ha
Open pollinated 12 kg/ha

Sowing Dates

Erap, Leron - January

Leron, Mutzing, Umi - mid January to mid February

Umi, Gusap, Dumpu - mid February to mid March

Central Province - mid January to mid February

Fertilizer

Up to 100 kg N/ha is required on a short fallow. On a long fallow 25 to 50 kg N/ha should suffice. If sulphur is limiting sulphate of ammonia should be used. If phosphorus is limiting 10 to 25 kg P/ha should be applied.

Herbicide

Apply atrazine at 1-2 kg a.i./ha preferably pre-emergent (before coming out). Stomp at 1.5 kg a.i./ha will give good control of Rottboelia.

Insects

Maize has very few insect pest problems in PNG. Armyworm (*Spodoptera sp.*) can cause leaf damage during the first 3 to 4 weeks. Apply acephate at the rate of 1 kg a.i./ha if necessary.

FURTHER INFORMATION

For advice on growing maize in lowland PNG contact:

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