

HOW PAPUA NEW GUINEA CAN OF ITS IMPROVE THE QUALITY BIRDS EYE CHILLIES

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INTRODUCTION

Over the years Papua New Guinea has developed a reputation on world markets as a producer of good quality birds eye chillies. Unfortunately, this reputation is not as good as it was because the quality of chillies produced has worsened. This article points out ways in which the quality of birds eye chillies can be improved.

PLANTING

To grow good birds eye chillies, farmers must first have the correct planting material. The Department of Primary Industry is responsible for providing good seed which should produce chilli bushes with fruit of an acceptable length, with good colour and with high (around 1%) capsaicin content. (The higher the capsaicin content, the 'hotter' the chilli tastes.) Growers can buy this seed in small amounts from L.A.E.S., Keravat, H.A.E.S., Aiyura and Lejo station at Popondetta. Several Provincial Departments, e.g. Western Highlands Province, produce their own seed, which is also of good quality. Growers should never use seed collected from their own gardens.

The chillies provided by D.P.I. as a seed source should be re-dried in the sun until brittle. The fruit can then easily be broken to release the seed, by

rubbing it on metal fly-wire or some similar surface. It is safe to store seed for some time after it is cleaned providing that it is kept in cool, dry conditions. However, it is better to use the seed immediately after it has been cleaned.

It is easier to sow seeds in small wooden seed boxes, which can be placed in the shade and where watering can be properly controlled. This method of growing the seeds should be well known to all D.P.I. staff.

If seed boxes are not available, raised beds can be prepared on a suitable, well-drained site. There should be some shading to protect the beds from strong sunlight. The shade material will also help to protect the seed during periods of heavy rainfall. A suitable shade material is Kunai. It can be laid on a wooden framework above the seed beds.

In both boxes and raised beds, the seed should be thinly spread, and lightly covered with fine soil or sand. The seed beds should be kept moist, but do not overwater, as this will lead to disease.

If the seed is in good condition it should germinate (start to grow) fairly evenly within a week to ten days in the lowlands. Germination is slower at higher altitudes.

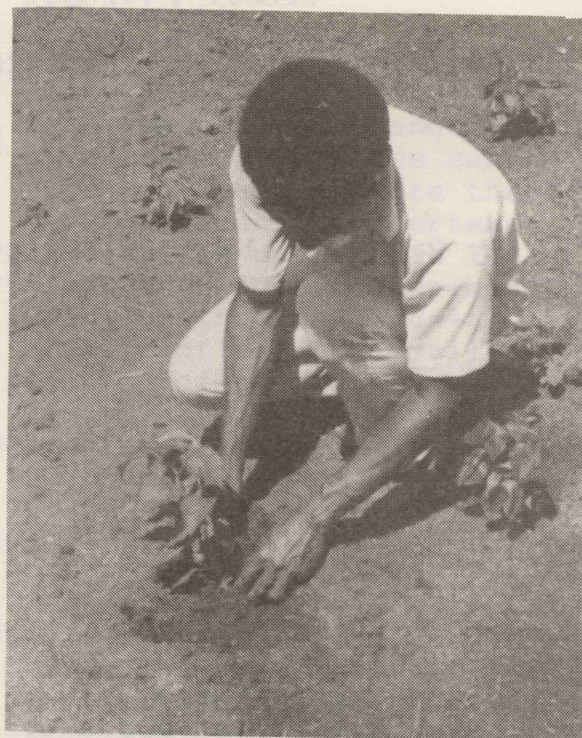
Once this seed has germinated and the first young leaves have grown, the plants can be re-planted at more regular spacing (for example 5 x 5 cm) to allow proper development. If very large numbers of seedlings are needed, then this will have to be done on raised beds. If small polybags are available, the seedlings can be replanted into these. This will make planting out in the field much easier, especially in dry spells when it is difficult to water. Polybags should also be used if the soil is very crumbly.



A young birds eye chilli plant

Before planting out, the land must be prepared in the same way as for a good garden. The soil should be weed-free and well broken up. In wet areas, raised beds may be needed. This will help to prevent the soil from becoming waterlogged.

Seedlings can be transplanted into the field when they reach 5-10 cm in height.



Planting out seedlings in the field

Before moving the plants from a shaded situation, they should be 'hardened-off'. This is done by removing a little of the shade material each day, until after 10-14 days, all the shade will have been removed. Each time some of the shade material is removed, it is necessary to make sure that the remaining shade is rearranged as evenly as possible.

When the plants are ready to be moved, a knife can be run between the rows in both directions to a depth of 4-6 cm, so that each seedling will sit in a square block of soil. A trowel can then be used to remove each block of soil containing a seedling out of the bed. The seedlings should be lifted only when required, so that there is little delay in planting them.

When planting into the field, it is important not to plant

the seedlings too deep. Newly planted seedlings should be mulched to keep the soil moist and should be watered regularly if the weather is dry. It is sensible to transplant during the rainy season.

The distance between plants is not very important in the irregular plantings seen in villages. It is important in field plantings where growers wish to produce as much fruit as possible. D.P.I. recommends a metre square in the lowlands and 0.8 metres square in the highlands. Most villagers have learnt the spacing that is best for their own crops. A grower should be able to move freely between his bushes when they are mature, without damaging them.

As soon as the plants are growing strongly, the growing points can be nipped out. This helps the plant form more branches. You could do this about a week before transplanting instead of afterwards. Once the area has been planted, it should be weeded regularly. If all bare ground is mulched, this will help to stop weeds growing.

Chillies do not need very fertile soil. Too much nitrogen in the soil could lead to too few flowers and the fruit may be too large. However, it is important that the same piece of ground is not used for chilli production over many years. Crops should be rotated as this maintains fertility and keeps pests and diseases to a minimum.

HARVESTING

If chillies are really ripe, picking is easy. At this stage the capsaicin content will be

at its highest. Often fruit appears to be ripe, but will only break away with the stalk. If the fruit is difficult to pick, it should be left for another day or so.

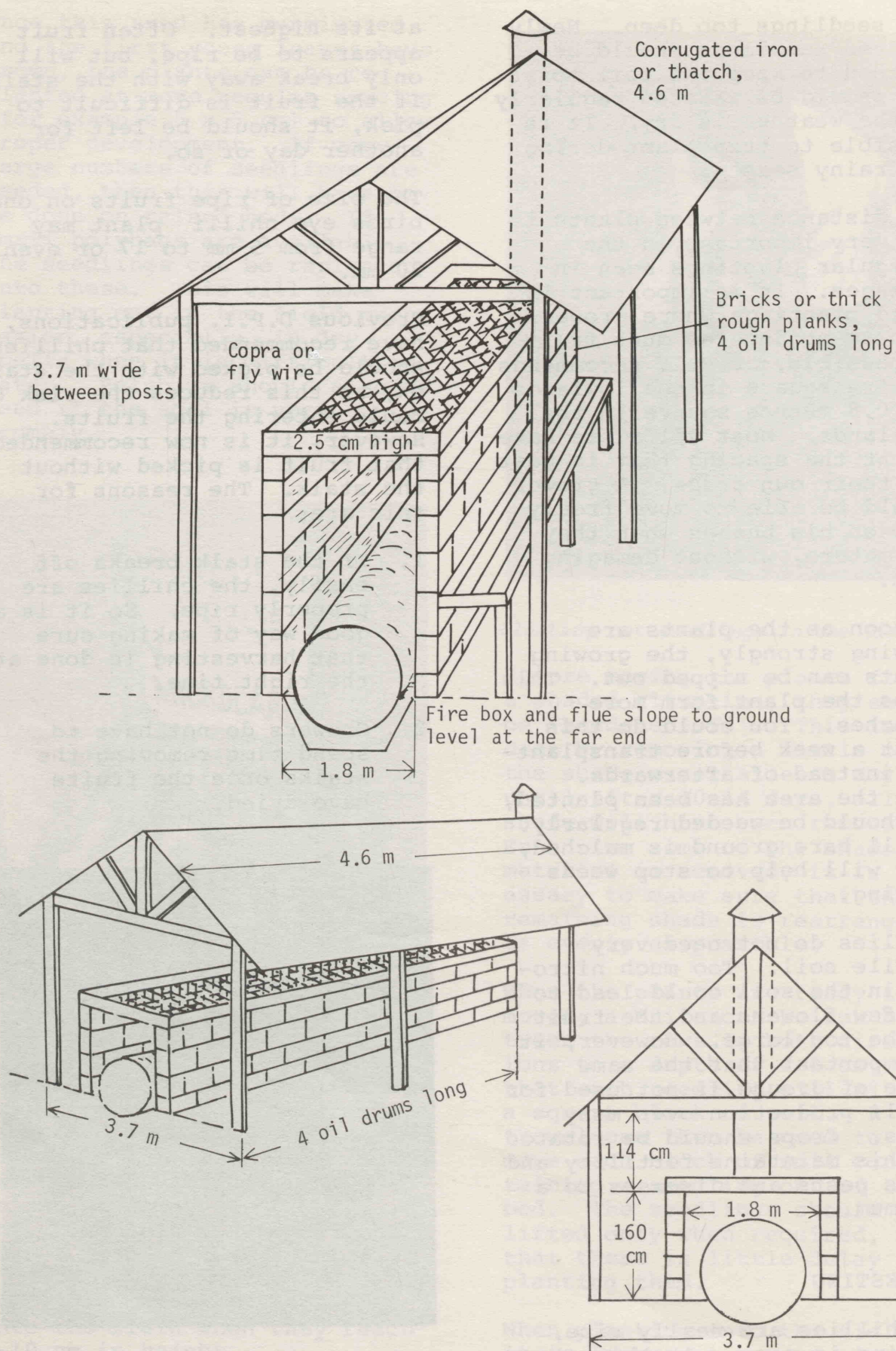
The size of ripe fruits on one birds eye chilli plant may range from 5 mm to 17 or even 20 mm.

Previous D.P.I. publications, have recommended that chillies should be picked with the stalk on, as this reduces the risk of mould entering the fruits. However, it is now recommended that fruit is picked without the stalk. The reasons for this are:

1. If the stalk breaks off easily, the chillies are properly ripe. So it is a good way of making sure that harvesting is done at the right time.
2. Growers do not have to spend time removing the stalks once the fruits have dried.



A plot of mature birds eye chilli plants



The 'Kukum' copra drier. It can be used for drying chillies.
(Plan prepared by Felix Bakani)

Freshly picked fruit should not be pressed into small containers. This will lead to bruising and could spoil the colour in the dried fruit. Such fruit will fetch a lower price. Containers for collection should allow the air to pass through the harvested fruit. Tightly woven string bags and woven cane baskets are ideal. Tins or plastic containers are not so good.

DRYING

Chillies can be dried outside, providing there is enough sunshine. Care should be taken however. For example, metal sheets should not be used to support the chillies, as they cause heat to build up. In severe cases, burning will occur. Even at 75°C there will be some damage and colour loss. It is better to use wooden boards, groundsheets made from polypropylene bags stitched together or plastic sheet. It is a good idea to use raised platforms rather than drying directly on the ground, since on the ground, dust and unwanted



Drying birds eye chillies in the sun

matter are picked up. Also, if non-waterproof groundsheets are used, the undersurface will become damp, and drying will take longer. Ideally, some kind of waterproof cover should be available to protect the chillies quickly from the odd rainshower.

Chillies should be dried to the stage where they begin to feel brittle. They will then have a moisture content of 7-10%. If the moisture content is less than 10%, it is safe to store chillies for short periods in the relative humidities found in our coastal regions.

In wet areas a wood-fired dryer can be used. A modified 'Kukum' copra dryer works well for this purpose. It is illustrated in the picture opposite. Smaller units can be made to suit the growers' needs.

Also, a cheap solar dryer is being built and tested by the Lae Unitech this year. The design looks promising. If it performs as well as expected we hope that it will be possible to make it available in kit form to interested growers.

People interested in the solar dryer should register their names with the National Spices Co-ordinator, D.P.I., Goroka. They will receive full details as soon as the test results are available.

MARKETING

It is not enough to encourage people to grow produce and to show them how. They must also be helped to sell that produce. D.P.I. must ensure that crops are high quality and try to pay farmers enough to encourage them to go on growing the crop. 'Marketing' therefore means everything from purchase from

the farmer to sale to a customer. It includes pricing, storage, transport, quality control, fumigation (a method of killing pests which may be living on the fruit, using a gas), and so on.

Some commercial operators are involved in the marketing of chillies in P.N.G. However, D.P.I. still deals with over half of the country's chilli crop. Farmers who grow chillies live in many different places, some very remote, and D.P.I. will probably have to do the marketing for quite a long time.

Unfortunately, D.P.I. has not helped improve the export of chillies. This is because not enough has been done to discourage people from growing the larger, milder chillies which cannot be sold for export. Until last year (1980), D.P.I. still paid farmers a good price for these 'medium' chillies. Many other countries already produce good quality mild and medium hot chillies at a low price. Papua New Guinea cannot compete with them.

D.P.I. is now encouraging farmers to grow the small, pungent (hot) varieties of chilli, such as the birds eye chilli. Not many countries grow these, and they can be sold for relatively high prices.

At the end of 1980, D.P.I. stopped buying third grade chillies because they were very difficult to sell. This means that now, farmers who grow chillies good enough for export will be rewarded, and those who grow 'medium' or poor quality chillies will not be able to sell their produce.

If D.P.I. is to market Papua New Guinea's chillies successfully, the field officers

(didimen) must do several things.

First, they should pay growers the right price for the quality of their chillies. Until 1980, D.P.I. had a 'medium' chilli price, but most of the 'medium' chillies were bought at the higher price for birds eye varieties. It is hoped that this will no longer happen. A two-grade system has now been introduced. Didimen in chilli growing areas have been sent samples of grades 1 and 2, and they should make sure that the chillies they buy match the quality of these samples.

Second, they should not buy chillies which are not dry enough, or contain too many leaves, stalks or other rubbish. The producer should be told to sort his produce, or dry it more thoroughly. D.P.I. used to employ people to sort out the rubbish from chillies. Now, farmers must do this themselves.

After purchase, chillies should be put in bags and stored in a dry place. It is preferable to put them on wooden pallets (platforms), otherwise they may become damp. In one station in the Highlands some bags of chillies had to be thrown away after a toilet started to leak. They would not have become damp if they had been stored off the ground.

Chillies should be sent to the port of export (usually Lae) as soon as possible. This means that they can be sold for export quicker. If stored for too long, they lose colour and become less 'hot'. Chillies which have not been dried well enough go bad very quickly. Even well dried chillies lose quality after long storage in humid conditions.

CONCLUSION

Papua New Guinea has the potential to become, once more, a supplier of high-grade birds eye chillies. Whether or not this happens depends largely on the didimen.

If the didimen make sure that producers use the correct planting material, that they are harvesting and drying

the fruit correctly, that the top price is paid only for the best chillies, and that chillies, once bought, are stored correctly and moved with the minimum of delay to D.P.I. at Lae, then our reputation on world markets will improve again and prices D.P.I. can pay to producers should rise.

Over to you!