Rural Broadcast—

MECHANIZED RICE PRODUCTION IN PAPUA AND NEW GUINEA

Considerable progress has been made in the Territory in the last two years, by growers, who are interested in the mechanized production of rice, and there are signs that the industry is becoming firmly established in at least two areas, the Markham Valley and the Mekeo. This talk aims to briefly review the methods recommended for growers at the present time, and some of the problems associated with the developing industry. All references are to the dry system of production, since favourable conditions for irrigation have not yet been located in accessible areas.

The first phase in the development of a rice growing area, is the initial land preparation. Because of the clearing cost factor, grasslands are virtually the only type of country being opened up for rice farming on a mechanized scale. These in their natural condition are found to have a dense cover of a coarse fibrous grass, either of the shorter types such as kunai or the taller types such as cane-grass. The above-ground part of this cover must be removed to permit the use of agricultural implements on the land and burning is recommended. Growers should avoid the high costs of uncontrolled burning or of slashing by hand to promote a burn. The best technique is to mechanically roll the grass flat on the area to be cultivated, and then burn after a period of a week or so for drying out of the broken stalks. This will be found to give a very uniform burn. Suitable rollers for towing behind a tractor can be cheaply improvised by welding strips of angle iron or steel rails on to 44-gallon drums, or by setting spikes in a hardwood log selected for its cylindrical shape.

On completion of the preliminary burning, the land will be found to be carrying a heavy content of grass stalks and roots, and this must be reduced by ploughing. Disc ploughs are recommended and the heavy bodied types should be used if possible. Heavy ploughs built on the spring-controlled disc principle such as the Australian "Majestic" plough, have done the best work in the Department of Agriculture trials. Ploughs should be set to work deep enough to ensure that all grass roots are taken and turned up towards the surface, where they can be chopped up by further tillage operations.

Initial ploughing should be followed by cross-ploughing and several cultivations with conventional tillage implement such as disc harrows. The aim of these operations is, two-fold—both to kill out the native coarse grasses, and to promote the digestion in the soil of the great bulk of fibre left behind by their roots and stalks. This initial work should always be done at least six months and preferably nine monthe before the sowing of the first crop, otherwise this crop will be a very disappointing one, varying from patches which have run to too much stalk and leaf, to patches which are stunted and low yielding, and will inevitably be heavily infested with native grasses. An alternative, is to grow a heavy-feeding smothering crop, such as sweet potato immediately after the land is first opened up.

These opening up operations, are the most expensive phase in the development of rice farming, and growers should plan them very carefully and give careful thought to the purchase of the necessary implements. Conventional disc ploughs, which on present experience are essential for the control of native grasses, are slow-moving with a comparatively narrow cut. As will be mentioned later, it is considered, that on properly managed land, the use of such ploughs will be necessary only once every three or four years. Ideally, therefore, groups of growers should combine to split the cost of such equipment.

Fig. 1.—An almost pure stand of cane-grass ("Saccharum" sp.) in the Mekeo area, typical of the grass cover found on many areas of river valley and plain-country soil prior to cultivation.
(Photo by courtesy of K. R. Ewart)

Fig. 2.—Regrowth of cane-grass after single deep ploughing of virgin grassland.
(Photo by courtesy of K. R. Ewart)

Fig. 3.—Fallowed rice land.
(Photo by courtesy of K. L. Ewart)

Fig. 4.—Harvesting a partially lodged rice crop in the Mekeo area using an open-front header.
(Photo by courtesy of S. C. Baseden)

Rice needs a carefully prepared seed-bed, and should never be sown into land where weeds have already germinated. In such cases, an extra harrowing should always be given. Conventional types of multi-row grain combines have proved quite satisfactory for seeding in this Territory, and ensure the most effective use of prime-movers. Disc-drills are to be preferred to hoe-drills.

Much has recently been learned concerning suitable harvesting procedures, for rice, in the Territory. The importation and trial of the open-front type of header, has shown that this machine is definitely superior to types which feed the headed crop in through a winder. The open-front type machines are much better adapted to handling the heavy leaf and stalk growth of our crops. Additional equipment, such as the pick-up reel fitted with fine steel fingers, and similar picking-up fingers used on the elevator canvases is most valuable in the harvesting of fallen crops.

Growers in selecting seed, should look ahead to harvest time, when for mechanical harvesting even ripening is of great importance. The sowing of a mixture of varieties or of a variety known to ripen unevenly, should be avoided. Where a crop is ripening unevenly, as sometimes occurs, during unseasonal weather, regardless of the variety used, a mechanical windrower can be helpful. This machine mows the crop and delivers it in orderly rows across the field. The crop is allowed to ripen, in these windrows, and is then harvested by an open-front header with pick-up attachments.

Tillage between crops aimed at giving controlled management of the area being farmed, is considered to be of the utmost importance. The practice of leaving land untouched between crops, leads to the re-establishment of native grasses and the costly use of the plough before a new crop can be safely sown. Tillage implements such as disc harrows and disc tillers, are fast moving with far wider cuts than ploughs of the same draft and very economical to operate. The aim in using them should not be to maintain a bare surface during the inter-crop period, but to reduce all volunteer growth at sufficiently frequent periods to prevent the native grasses from getting established. Some breaking up of the sub-surface soil to provide for aerating and drainage is desirable prior to the sowing of each new season's crop. This can be done effectively and economically using the new sub-surface tillage type of equipment such as chisel cultivators and sub-surface sweeps.

Careful use of the tillage implements mentioned above should enable the grower to eliminate ploughing until such time as the land has to be left out of crop for the inevitable rest period.

This brings us to the close of the present talk.

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