RECOMMENDED PRACTICES FOR RICE PRODUCTION IN WARM TEMPERATE ZONES (HIGH ALTITUDES)

AREAS

These recommendations are for high altitude areas (1600-2600 m) that include Paro, Thimphu, and parts of Wangdue, Punakha, Tongsa, Lhuntshi and Tashigang.

VARIETIES

No.11

- Cold tolerant, high yielding, early maturing japonica rice.
- About 90 cm tall and matures 135-145 days after sowing.
- Short bold white grains with 66% milling (head rice) recovery.
- Difficult to thresh.
- Yields 5-7 t/ha under moderate management, but responds to fertilizers

Local Maaps

- Cold tolerant, tall stature, long growth duration, japonica types.
- Medium-short red grains, preferred for eating.
- Yields 2-3 t/ha under optimum management levels. Not responsive to higher levels of fertilizer.

CROP ESTABLISHMENT

Nursery sowing

- Optimum sowing date: March or first week of April
- Seed rate: 50-60 kg/ha
- Use clean and healthy seeds.
- Seedlings can be raised using semi-dry or dry bed methods (see leaflet on seedling production).

PREPARATION OF FIELD

Land preparation is one of the important factors that influences rice yield. It provides good physical, chemical, and biological conditions of the soil for optimum growth.

- Two or three ploughings are needed, followed by puddling and levelling.
- Plough thoroughly and then flood.
- Drain the water slightly and plough, rotovate or harrow as needed and level the field.
- A final puddling and levelling may be required just before transplanting.
- Repair and maintenance of bunds and the incorporation of chemical fertilizers, if any, should be done before the final puddling.

MANURE AND FERTILIZER

Farmers routinely apply FYM to rice in the high altitude areas. The rate of application varies widely from 5 to 20 t/ha. FYM contributes significantly to crop nutrition and soil condition. It is desirable to encourage the use of FYM.

Our recommendation is to apply about 5-8 t/ha FYM basally, and topdress with 35 kg N/ha 35-40 days after transplanting.

If adequate FYM is not available, apply 75:40:0 NPK kg/ha. Half the N and all the P should be applied as the basal dose. Topdress the remaining N 35-40 days after transplanting. For local varieties, limit N to 50 kg/ha to prevent lodging.

TRANSPLANTING

Transplanting time: Mid-May to mid-June

Traditional random method can be used if:

- Weed pressure is expected to be low.
- Butachlor will be used.
- The terraces are narrow and small.

Line planting should be done if weeding will be carried out with a rotary weeder.

- Use a rope to give a row spacing of 20 cm and within-row spacing of 15-20 cm.

A plant density of 25-35 per square metre is optimum. Transplant local varieties at a closer spacing (15 x 15 cm), as they do not tiller well.

WEED CONTROL

Weeds are serious competitors of rice. They compete for water, nutrients and sunlight, and reduce grain yields.

Where weed pressure is low or moderate, 2 hand weedings 20 and 40 days after transplanting are sufficient. If hand weeding is to be done, plants should be closely spaced and the first weeding performed no later than 30 days after transplanting.

Where weed pressure is high, use line planting and rotary weeding. Two rotary weedings 20 and 40 days after planting are recommended. In areas where shochum is a severe problem, additional hand weedings may be required.

If there is no or little shochum but weed pressure is high, Butachlor is a very effective alternative to rotary weeding. It is applied 3-6 days after transplanting at the rate of 30-40 kg/ha of 5% "Punch" granules.

If shochum is a major problem it can be controlled by Sanbird applied at 25-35 kg/ha 4-6 days after transplanting. Alternatively apply NC 311 at 25-30 kg/ha.

As weeding is laborious, and the use of herbicides is undesirable, there must be emphasis on indirect complementary weed control methods like good land preparation, proper water management, and use of weed-free seedbeds and seeds.

WATER MANAGEMENT

After transplanting keep the water level low for 4-7 days until the seedlings recover. Water level should then be increased as the crop grows ensuring adequate water from tillering to flowering.

If the supply of water is limited, continuous flooding is not possible. In this case irrigate at short intervals but do not let the field become excessively dry and crack. Flowering is the most critical stage when rice should not be exposed to moisture stress.

Drain water from the field 10-15 days before harvest to enhance ripening.

PLANT PROTECTION

Insect pest and diseases are normally not a major problem in rice at high altitudes.

HARVEST

Under normal conditions harvesting begins from the first week of October. Harvest the crop when at least 85% of the upper portion of panicles turns straw coloured. Some leaves and stems may still be green at grain maturity, particularly for No.11.

Local varieties shatter very easily, and timely harvest will minimize grain losses.

For further information contact
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