- Varieties maturing in January usually escape the maximum intensity of the disease.
- Dusting Sulphur @25 kg/ha is also recommended.

Rust (Uromyces fabae)
The disease is caused by the fungus Uromyces fabae.

Symptoms

- The stem of the plant becomes malformed and the affected plant dies.
- All the green parts of the plants are affected.
- The earliest symptoms are the yellow spots having aecia in round or elongated clusters.
- Then the uredo pustules develop which are powdery and light brown in appearance.

Management

- After harvest the affected plant trash should be burnt.
- Follow suitable crop-rotation with non-leguminous crops.

Harvesting

Crops are generally be ready for first picking 90 to 100 days but may be as quick as 70 to 90 days, under mid hill conditions. The crop for the fresh market is generally harvested over a three-week period through two-three pickings. As stated above, different varieties of garden pea have varying maturity periods. The picking of green pods should be done with a simple jerk to the pedicel with minimum possible disturbance to the plant.

Yield

By adopting zero tillage practices 5.0 to 6.0 tonnes/ha of green pod may be harvested.

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ZERO TILL CULTIVATION OF VEGETABLE PEA IN RICE FALLOW FOR MID HILLS OF SIKKIM

NICRA
National Initiative on Climate Resilient Agriculture

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Importance

In Sikkim, after harvesting of rice, most of the farmers leave their land fallow. Although, some farmers are growing vegetable pea after harvesting of rice through broadcasting with conventional tillage practices which implies higher energy input, resulting in lower input use efficiency. Conservation practices have shown advantages over traditional practices by improving productivity and soil health in case of major crops. Hence, by adopting the zero tillage technique for growing of vegetable pea may be an option for mountain production system for obtaining higher productivity and enhancing soil health through less soil disturbance.

Field preparation

After harvesting of rice, all the weeds present in field are removed immediately with the help of sickle.

Varieties

Early maturing, resistant to major diseases should be selected for higher productivity. Following varieties are recommended under zero-till production system of Sikkim.

- VRP - 5
- VRP - 6
- TSX – 10
- Arkel
- Pant Sabzi Matar – 3
- Pusa Pragati

Seed rate and seed inoculation

Seed rate and spacing vary according to the varieties. The early maturing varieties like Arkel, VRP -5 and VRP - 6 etc. should be grown at close spacing and higher seed rate and the late maturing varieties grown at wider spacing and lower seed rate. In case of early maturing dwarf varieties, crop should be sown 30 cm apart and about 80-100 kg seed/ha should be sown. In late maturing and tall varieties row spacing of about 40 cm seems optimum. The seed rate should be reduced to 75-80 kg/ha. Before sowing, seeds should be treated with Rhizobium culture. Depending on the seed rate, the required amount of jaggery is boiled in water and cooled. Rhizobium inoculation @ 200 g/kg seed is sprinkled, mixed in jaggery solution and dried in shade.

Sowing

In zero tillage, a slight opening is made on soil surface for placing the seeds. Prototype zero till drill machine is available for the purpose, which opens the soil surface and places the seed in to soil in one operation. Otherwise row marker is also available for opening the soil for placing the seeds.

Nutrient management

Being a leguminous crop it requires only starter dose of nitrogen. Apply vermicompost or neem cake @ 1.0 t/ha in furrows open for sowing of the seeds.

Weed management

The critical period for crop weed competition in vegetable pea is 15-40 days after sowing. The major weeds found in pea are Chenopodium album (Bathua), Fumaria parviflora (Gajri), Lathyrus spp. (Chatrimatri), Melilotus (senji) and Vicia sativa (ankari) etc. which reduces the yield if not managed in time. Therefore, the field should be kept weed-free with giving two hand weeding at 15 and 35 days after sowing. Weeding at later stages should be avoided as it may damage the crop by trampling, mechanical breakage of tender, succulent stems and branches.

Water management

Soil moisture deficit at critical stages reduces growth and development. The soil should be kept moist (at field capacity) for getting higher productivity. The surface layer of soil should remain sufficiently moist to allow for plant emergence and may be allowed to dry out appreciably before any follow-up irrigation. Two most critical stages are pre flowering and pod formation stage where irrigation should be ensured to the crop. Water-logging condition in pea field, even for a day, causes considerable loss in the yield since this crop is highly sensitive to poor drainage conditions that leads to reduction in the number of branches and pods per plant.

Important diseases management

Powdery mildew (Erysiphe polygoni)
This disease is caused by the fungus Erysiphe polygoni. It is a serious disease of pea crop. The disease occurs worldwide and much more serious than other diseases of pea because it occurs more frequently and covers a larger host surface area. Early varieties are less damaged.

Symptoms

- The symptoms first appear on the leaves and then on other green parts of the plant.
- They are characterized by white powdery, patchy growth on both the surfaces of the leaf and also on the tendrils, pods and stem.
- In advanced stage, entire plants surface may be covered with white powder which consists of mycelium and spores of the fungus.
- The number and weight of the pods are reduced.

Epidemiology

- It is induced by dry weather.

Management

- Avoid late planting.
- After harvest, collect the plants left in the field and burn them.
- The disease can be controlled by two to three sprays of wettable Sulphur compounds like Sulfex @3 kg per hectare in 1000 l of water. The first spray is done after appearance of the disease in the crop. The second spray should be done 14 days after the first spray and the third spray only if there is a need for it. Spraying 10 per cent milk dilution at 10 days interval is effective with modification of pH conditions.