

Yellow mustard is also sown as cash crop like toriya between Rabi and Kharif. Additional profit can be earned by its cultivation.

Preparation of Field

First plough is to be done by disc harrow followed by 2-3 plough by local plough, cultivator/ harrow. Use leveler to make the soil fine.

Progressive Variety

| SN | Variety/ strong> | Date of Redemption | Date of Notification | Duration Of Ripening (Days) | Yield (Qtl/ Htr) | Oil Content (%) | Remarks |
|----|-----------------------|-----------------------|-------------------------|--------------------------------------|------------------------|-----------------------|-------------|
| 1 | Pitambari | 2009 | 31.08.10 | 110-115 | 18-20 | 42-43 | Whole UP |
| 2 | Narendra Mustard-2 | 1996 | 09.09.97 | 125-130 | 16-20 | 44-45 | Whole UP |
| 3 | K.-88 | 1978 | 19.12.78 | 125-130 | 16-18 | 42-43 | Whole UP |

Quantity of Seed

Use yellow mustard seed at the rate of 4kg/hectare.

Seed Treatment

For protection from seed borne diseases, sow the seeds after treatment. Sow the seed only after treatment with thiram at the rate of 2.5 gm per kg seed. If thiram is not available, treatment with metalaxyl at the rate of 1.5 gm per hectare controls the white gerui and tulasita disease in early stage.

Sowing Time

Yellow mustard should be sown from 15th September to 30th September. To get good crop of wheat, yellow mustard should be sown in first fortnight of September when the time is available.

Quantity of Fertilizer

Use fertilizers on the basis of recommendations of soil testing. If soil testing is not possible, use fertilizer as follows:

- In non-irrigated area, use 40 kg nitrogen, 30 kg phosphate and 30 kg potash per hectare.
- In irrigated area, use 80 kg nitrogen, 40 kg phosphate and 40 kg potash per hectare. Use of phosphorus as single super phosphate is more beneficial because it supplies 12% sulphur. Half of the quantity of nitrogen and full quantity of phosphate and potash should be given 2-3 cm below the seeds in furrows by funnel (chonga). Remaining quantity of nitrogen should be used at the time of first irrigation as top dressing. 200 kg gypsum and 40 kg per hectare rot farm yard manure must be used for supply of sulphur.

Method of Sowing

Sowing by local plough is beneficial. Sow 3-4 cm deep at a distance of 30 cm in rows and cover the seed by using leveler.

Weeding and Hoeing

Keep the distance between 2 plants as 15 cm by uprooting dense plants within 12-15 days of sowing. To destroy the weeds, first hoeing should be done at the same time. Spray pendimethylene 30 EC uniformly at the rate of 3.3 liter per hectare dissolved in 800-1000 liter of water after sowing before germination.

Irrigation

Rye is more susceptible to the deficiency of moisture at the time of flowering. Hence to get good yield, irrigation is essential at this stage. Make proper arrangement of water drainage.

Crop Protection

(A) Critical Insects

- **Ara Fly:**

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- **Painted Bug:**

The infant and adults of these insects are spotted and are in black, orange and red in color. The infant and adults sucks the juice from leaves, branches, stems and fruits. The infested leaves dry from the edges and start falling. Grain formation is also adversely affected in infested pods.

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- **Haired larva:**

The larva is black and orange in color and the whole body is covered with hair. The larva lives in cluster and eats the leaves. It spreads in the whole field afterwards and eats the leaves. . In case of intense menace, the whole plant becomes leaf less.

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- **Mahu:**

The infant and adults of these insects are yellowish green in color that sucks the juice of soft stem, leaves, flower and new pods and weakens them. Mahu secretes the honey on which black fungus grows which hinders the photosynthesis.

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- **Leaf borer insects:**

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Economic Loss Level

| SN | Name of Insect | Stage of Crop | Economic Loss Level |
|----|-------------------|---|---|
| 1 | Ara Fly | Vegetative stage | One larva per plant |
| 2 | Leaf Borer Insect | Vegetative stage | 2-5 larva per plant |
| 3 | Haired larva | Vegetative stage | 10-15% infested plant |
| 4 | Mahu | Vegetative stage to flowering and pod formation | 30-50 mahu per 10 cm on the mid upper branch or 30% plant infested by mahu. |

Control Measure

- Deep plough in summers.
- Use balanced fertilizers.
- Collect the larva of Ara fly in the morning and destroy them.
- Catch the larva in the early stages that are found in clusters and destroys them.
- In early stages flowers, infested pods and branched should be plucked and destroy them along with mahu.
- If the insect menace has crossed economic loss level, use following insecticides:
- For control of Ara fly and haired larva, spray malathion 5% DP at the rate of 20-25 kg per hectare or malathion 50% EC 1.50 liter or di chlorvas 76% EC

500 ml or quinalfos 25% EC at the rate of 1.25 liter per hectare dissolved in approximately 600-750 liter of water.

- For control of Mahu, painted bugs and leaf borer insects, spray 1 liter of dimethoate 30% EC or methyl-o-demeton 25% EC or chlorpyrifos 20% EC or monocrotophos 36% solution at the rate of 500 ml per hectare dissolved in approximately 600-750 liter water. Azadirachtin (Neem oil) 0.15% EC can also be used at the rate of 2.5 liter per hectare.

(d) Main Disease

Alternaria Leaf Blight:

In this disease, dark brown colored spot are formed on leaves and pods which clearly appear as ring shaped on the leaves. In case of intense menace, the spots are jointed. This burns the whole leaf.

White Gerui:

White blisters are formed on the lower surface of the leaves because of which the leaves turn yellow in color and start drying. The florescence becomes distorted at flowering stage which results in no pod formation.

Tulasita Disease:

In this disease, a small spots appear on the upper surface of older leaves and white haired fungus grows on lower surface of the leaves. Slowly the whole leaves turn yellow and dry.

Control Measures

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- For control of white gerui and tulasita disease, sow the seed after treatment with metalaxyl 35% WS at the rate of 2 gram per kg of seed.
- For control of alternaria leaf blight, sow the seed after treatment with thiram 75% WS at the rate of 2.5 gram per kg of seed.

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- For control of alternaria leaf blight, sow the seed after treatment with thiram 75% WS at the rate of 2.5 gram per kg of seed.

• Soil Treatment:

For control of soil and seed borne diseases, mix the bio pesticides trichoderma viridi 1% wp or trichoderma harzianum 2% wp at the rate of 2.5 kg per hectare with 60-75 kg of rot farm yard manure, sprinkle light water on it and keep it in shade for 8-10 days. Mix it in the soil at the time of last plough before sowing. This will help in management of seed/soil borne diseases of rye/ mustard.

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- **Foliar Treatment:**

For control of alternaria leaf blight, white Gerui and tulasita disease, spray 2kg of mancozeb 75% WP or zineb 75% WP or zirum 80% WP or copper oxy chloride 50% wp at the rate of 3 kg per hectare dissolved in 600-750 liter of water.

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(C) Critical weeds

Bathua, Santhi, Krishna neel, Hiran khuri, chattri-matri, Akra, forest carrot, gajri, pyaji, khartua, satyanaashi etc.

Control Measure

- For weed control by weed herbicides, mix fluclorenalene 45% EC at the rate of 2.2 liter per hectare dissolved in approximately 800-1000 liter of water in the soil just before sowing or spray pendimethylene 30% EC at the rate of 3.3 liter per hectare dissolved in water as above through flat fan nozzle uniformly within 2-3 days of sowing.
- If the weed herbicide has not been used, control the weeds by hoeing with hand hoe.

Harvesting and Threshing

When the pods turn 75% golden in color, reap the crop and dry it. Thresh and separate the seed afterwards. If the harvesting is delayed, there is possibility of shredding of seeds. Store the seeds after drying well so that the grains are not adversely affected.