

Grapes

Intercultural Operations

Weed Control :

Weeding in the vineyards is generally done mechanically. Frequent weeding is required to allow feeder roots to absorb the nutrients and moisture without any competition. Bullock-drawn or tractor drawn implements can be used for intercultivation and weed control, if sufficient space is provide between the vines. In the vineyards, where close spacing are adopted manual weeding or digging the plots with garden forks and lifting the weeds once in three months is a common practice. Periodical cultivation with disc harrow to turn the soil and push nutrients into the deeper layers is essential. This practice in case of black soils helps to loosen the top 8cm soil to facilitate aeration to the roots. Problematic weeds like *Cyanodon dactylon* and *Cyperus rotundus* are removed manually by digging deep to remove their deep-seated runners. The exposed roots after drying are collected and burnt.

As the manual labour is becoming costly, pre-emergence application of herbicides such as Diuron, Simazine or Atrazine @ 2 kg a.i. /ha and Goal (Oxyfluorfen) @ 1 kg a.i. /ha after pruning is recommended to control most of the weeds. Glyphosate @ 10 ml/litre mixed with 5g of Ammonium Sulphate and detergent, as a post-emergence spray is effective in controlling weeds for a period of 4-6 months.

Pruning :

Removal of any vegetative part in a vine is called pruning. It is a critical operation in grape cultivation. Therefore much care and precision needs to be exercised in pruning a vine. The main objective of pruning of grapevines is to increase productivity, facilitate intercultultural operations, and maintain desired vine shape and vitality of the vine for constant productivity.

Pruning is normally done only once in North India during January- February by heading back half of the mature shoots for fruiting and the balance half are pruned for renewal spurs, which develop into fruiting canes in the next year.

In Maharashtra north Karnataka and Andhra Pradesh the vines are forced to undergo rest for about a month immediately after harvest. This helps in storing the food material in the mature parts of the vine. The canes are cut back in April by keeping 1-2 buds which develops into canes in 4-5 months. The dried canes are also removed. Here it is called 'back pruning' or 'growth' pruning. In the month of September-October these canes are pruned for fruiting. This pruning is called 'forward pruning' or winter pruning. Vines, which have attained the age of one year can be subjected to this pruning. The level of forward pruning depends upon the region, variety and vine vigour. Normally the vines start yielding in about 5 months from forward pruning.

In Tamil Nadu pruning is done during November-December for summer crop harvested during March-April. While pruning in May-June results in second crop during August-September. In the south interior Karnataka, the forward pruning is done during October-November for summer crop harvested during February-March and during April-May for the second crop harvested during July-August.

Effects of GA

Concentrations	Methods of application	Time of application	Effects
10-15 ppm	Spraying	Before flowering	Increases the stalk length of the bunch
20-25 ppm 20-25 ppm 20-25 ppm	Spraying Bunch dipping Bunch dipping	After 25% Capfall 50% Capfall 75% Capfall	Thinning of berries Thinning of berries
35-40 ppm	Bunch dipping	After fruit setting	Thinning of bunches
30-40 ppm GA + cytokinin	Bunch dipping	At 3-4 mm berry size	Increases the bunch size.
30-40 ppm GA + cytokinin	Bunch dipping	At 6-7 mm berry size	Increases the bunch size.

(Source : NRC Grapes)

Effects of Ethylene

Concentrations	Time of Application	Effects
100 ppm	15 days after bud sprout following April pruning.	Reduces apical shoot growth.
200 ppm	At 15-16 leaf stage following April pruning.	Increases the cane thickness.
1000-1500 ppm	3-4 days before October pruning	Induces leaf drop.
250 ppm	At verasion stage or at sugar formation stage	Increases the Brix %.

(Source : NRC Grapes)

Effects of Cytokinins

Category	Concentrations	Time of application	Effects
6 BA	10 ppm	15-16 leaf stage after April pruning	Increases fruit setting in the buds.
	10 ppm	At 3-4 mm berry size along with 30-40 ppm GA after October pruning	Increases the berry size.
	10 ppm	At 6-7 mm berry size along with 30-40 ppm GA after October pruning	Increases the berry size and shape.
CPPU	2 ppm	1 st application at 3-4 mm berry size along with GA dipping	Increase the stalk thickness & berry size, promotes round berry shape and maintains the green colour of the berries.
	2 ppm	2 nd application at 6-7 mm berry size.	

(Source : NRC Grapes)