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Bud, Flower and Berry Drop in Grape (*Vitis vinifera*)

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Abstract – **This phenomenon has been reported from North India in the states of Punjab, Haryana and Rajasthan. Flowers drop from the clusters just before and after opening. The buds drop on shaking the panicle. Excessive bud and flower drop results in reduction of yield. Association of a number of factors such as atmospheric temperature, high phosphorus and total salt contents of the soil has been reported as the factors causing this malady. Therefore, judicious irrigation practices and canopy management practices to improve ventilation during the flower development helps to minimize the flower bud and young berries drop. In grapevines, a large number of flowers drop primarily in the two weeks following full bloom. Planofix @ 100 ppm is most effective in reducing post-harvest berry drop (spray at 1-2 week before harvest (Singh *et al.* 1985, Narasimham *et al.* 1967). parachlorophenophenoxy acetic acid (PCPA); gibberellic acid (GA); Phenoxy acetic acid; maleic hydrazide-40 (MH) and Planofix, with two carriers namely, Waxol-O and water, sprayed 7 days prior to harvest, on the control of post-harvest berry drop in Banaga1ore blue grapes. A concentration or 100 ppm is effective (Narasimham *et al.* 1967). 50ppmx/NAA and1. 5% of Calcium Chloride applied 14 and 28 days before harvest respectively, none of reduce berry drop significantly (Singh *et al.* 1985), maintain C:N ratio, balance use of fertilizers reduces the incidence of this melody.**

Keywords – **Bud, Berry Drop, Flower Drop, Grape.**

I. INTRODUCTION

Bud and Flower Drop: This phenomenon has been reported from North India in the states of Punjab, Haryana and Rajasthan. Flowers drop from the clusters just before and after opening. The buds drop on shaking the panicle. Excessive bud and flower drop results in reduction of yield. Association of a number of factors such as atmospheric temperature, high phosphorus and total salt contents of the soil has been reported as the factors causing this malady. Therefore, judicious irrigation practices and canopy management practices to improve ventilation during the flower development helps to minimize the flower bud and young berries drop. In grapevines, a large number of flowers drop primarily in the two weeks following full bloom. Fruit set is achieved once the "berry shatter" period is complete. Fruit set could be considered a "self-thinning" technique that enables the vine to regulate the crop, by adjusting it to the available resources without risking survival of the plant. Percentage (%) of fruit set is a quantitative measure of the proportion of flowers that develop into berries following bloom.

Berry drop*:* It is occurs due to several factors such as nutritional, environmental, biotic factors, genetic and physiological factors. It is mainly two types such as pre and post-harvest berry drop. In pre-harvest berry drop berries are shredded from grape vine due weak pedicel attachment, necrosis of pedicel. Post harvest berry drop is much severe than pre-harvest berry drop.

Postharvest berry drop **:** This is due to weak pedicel attachment to the berries. This is common in Anab-e-Shahi, Cheema Sahebi and Beauty Seedless. Spraying of NAA (50 ppm), a week prior to harvesting can minimize the post-harvest berry drop.A pre-harvest spray of benzyladenine at 500 p.p.m. significantly reduced post-harvest berry drop of Anab-e-Shahi grapes and A mixture of 100 p.p.m. a-NAA and 100 p.p.m. benzyladenine solution resulted in the lowest drop (Rao 1970). NAA, PCPA, 4-CPA reduce berry drop in grape (Weaver, 1953, Lavee, 1959, Narasimham *et al.* 1967.)

1. Causes of bud, flower & fruit drop:

The malady has been investigated and the association of a number of factors as following :

- Improper nitrogen application- In grape vine if we use excessive doses of nitrogen than shoot growth influence and reduce reproductive growth such as berry growth, berries may shrink or shredded off.
- Improper fertilization- Imbalance use of fertilizers induce this melody, absence of proper C:N ratio bud development, flower and berry affected.
- Ambient temperature- Grape is a subtropical fruit crop, it requires warm and humid climate so that in high temperature and chilling temperature bud and flower of grape.
- Heavy crop load- In vigorous cvs. of grape severely affected by
- Damaged by Insect-pests
- Uneven ripening and endogenous auxin deficiency at a particular stage of berry development are reported to cause the malady.

2. Losses due to this melody:

a) ***Reduction in yield-*** Due to shredding of bud, flower and berry yield will reduce and we will get less yield because heavy blossom drop and poor fruit may set even after fruit set also berry may drop due several factors. So due to this melody heavy loss may occur in grape vine.

b) ***Economic loss-***It fetches lower prices due to bad appearance of bunch due to post harvest berry drop, some berries drops from bunch so bunch looks unfilled.

3. Control measures: -

- ***Cultural practices-*** we can control this melody via good cultural practices such hoeing and weeding because hoeing will improve ventilation in roots of plants
- ***Maintain C:N ratio-***Due to imbalance of C:N ratio in soil bud, flower and berry drop so that we should be maintain proper C:N ratio

- ***Balance use of fertilizers and minerals*** - Balance use of fertilizers in proper way to maintain soil fertility for influencing growth of plants.
- ***Use of PGRs - Planofix*** @ 100 ppm is most effective in reducing post-harvest berry drop (spray at 1-2 week before harvest (Singh *et al.* 1985, Narasimham *et al.* 1967). parachlorophenophenoxy acetic acid (PCPA); gibberellic acid (GA); Phenoxy acetic acid; maleic hydrazide-40 (MH) and Planofix, with two carriers namely, Waxol-O and water, sprayed 7 days prior to harvest, on the control of post-harvest berry drop in Banaga1ore blue grapes. A concentration or 100 ppm is effective (Narasimham *et al.* 1967). 50ppmx/NAA and 1.5% of Calcium Chloride applied 14 and 28 days before harvest respectively, none of reduce berry drop significantly(Singh *et al.* 1985), 500 ppm ethrel at veraison stage should be applied; dipping of bunches in NAA 100 ppm 10 days before ripening reduces berry drop, heavy irrigation at bloom should be avoided. Spray of PGRs (GA_3 20-50 ppm, IAA 10-20 ppm and PCPA 20 ppm) at 18 & 10 days before anthesis.
- ***Special measures*** - Making 0.5 cm wide girdle from the trunk about 10 days before full bloom which results in better berry set.
- ***Limiting supply of nitrogen during spring, topping vigorous shoots*** - Because in excessive use of nitrogenous fertilizers shoot growth will influence and reproductive growth may reduce that's why bud drop, blossom shedding and berry drop.

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