

Physiological Disorders of Cauliflower (*Brassica oleracea* var. botrytis)

K. Rajendar Sagar

Introduction

Physiological or a-biotic are diseases this is primarily attributed to variations in environmental factors such as temperature, humidity, unbalanced soil moisture, insufficiency or abundance of other soil nutrients, soil extremes pH and low drainage. Unlike physiological or abiotic disorders another condition is that living creatures don't cause them (viruses, bacteria, fungi, insects, etc.), but they are the result of abiotic situations (inanimate) i.e. Its agent's area unit non-living in nature inflicting deviation from traditional growth they end in physical or chemical changes during an exceedingly in a very plant that's removed from traditional and is sometimes caused by an external issue.

Factors implicated in occurrence of physiological disorders include

Atmospheric conditions: Atmospheric conditions overall play havoc with fruit plants in some parts of the world.

Winter/cold injure and frost: Depending on severity, frost injury may cause browning of fruit tissues, deformation and

damaging of fruit parts to complete death of a frit.

Wind injury: Wind injury can also aggravate cold injury or winter injury, especially if the humidity is low at the time of the wind/cold period. Wind damage can be as simple as plant parts rubbing together causing surface scarring which also serve as entry points for pathogens.

Chemical injury: Any foreign chemical that is applied in the wrong dosage or at the wrong time can do physical damage to the fruit plants. The majority of chemical injuries will come from pesticides that are applied at too high rates, at the wrong time or during very hot days.

Physical soil problem:

The selection of a good site for growing is very important as soil can have a physiological effect on the plant, which can take many forms. Compacted soil allows water to percolate slowly into the soil causing saturated conditions resulting in the soil deformation.

K. Rajendar Sagar

*Ph.D. Scholar, Department of Vegetable Science,
Dr. YSR Horticultural University, College of Horticulture, Venkataramannagudem, West
Godavari District, Andhra Pradesh, 534101*

Browning

Browning is caused due to boron deficiency. Generally, the signs of boron deficiency are externally visible after curd forming on plants. The water soaked in early stages Areas occur on surface of stem and curd. As the plant develops, the stem gets empty with tissue absorbed water covering the stem Cavity inward dividers. In advanced deficiency stage, brown or pinkish coloured Areas are seen on curd surfaces, and are thus often referred to as brown red or red rot or the curd browning. Sometimes even without brown the stem can get hollow Fields on curd. In taste the influenced curds are unpleasant. The foliage shading first changes to dull green and afterward greenish yellow at the apical edge of the more seasoned leaves. When there is a severe boron deficiency, the leaves are developed under and smaller. In the young stage of the plant itself the growing point may die.

Control: Boron deficiency may be corrected through the application of borax.

The amount of borax depends on the type of soil, the pH of soil and the extent of the deficiency. 10-15 kg borax ha⁻¹ is sufficient in acid soil, also while greater quantities may be required as natural and alkaline soils.

Whiptail: The whiptail disorder is caused by a molybdenum deficiency. Chlorosis of the leaf margins are the deficiency symptoms in young plants, and the entire leaves may turn white. The blades on the leaf are not developing properly. Only midribs develop when the deficiency is serious. This disorder is usually referred to as 'Whiptail.' The plant's growing point is also deformed which impedes curd growth.

Control: Application of the lime in acidic soils is done to increase molybdenum availability. The amount of lime is determined by measuring the soil's pH in the first place. Alternatively, Sodium Molybdate application of soil (10-15 kg ha⁻¹) effectively controls the symptoms of the deficiency.

Buttoning: Known as buttoning is the development of small premature curds or



Browning



Whiptail



Buttoning

buttons while the plants are young. The button heads are exposed, and typically thin, poorly formed leaves are present in the plants that display this condition. Several factors such as poor supply of nitrogen, implanting of overage plantlets, harsh climatic situations and unsuitable planting time are stated to cause buttoning.

Control: Adequate supply of nitrogen and moisture for rapid vegetative growth of plant is considered important for preventing the occurrence of button plants. Growers are advised not to plant older seedlings. It is also necessary to delay planting until weather conditions are favourable for plant growth.

Blindness: Blindness in cauliflower is characterized by plants without the terminal buds and large, dark green, thick and leathery foliage. Axillary buds develop in some cases, but plants do not bear marketable heads. This disorder is very common on over wintered plants and one of the causes is believed to be due to the effect of low temperature on the small growing plants.

Control: Careful handling of the plants. Exposure of the plant to low temperature should be avoided.

Hollow Stem: In heavy soils, particularly with nitrogen, rapidly growing plants may develop hollow stem. Curling and rolling of the leaves, deformed foliage, brown curds or brown flower bud and hollow stem centres are the main symptoms of the hollow stem. Boron deficiency is the main culprit of the disorder.

Control: It can be controlled by providing close spacing and proper use of nitrogenous fertilizers.

Leafiness: Small thin leaves from curds are formed which reduces their marketability. Very lesser green leaves usually appear among the curd section because of heritable or inheritable factors. The occurrence of high temperatures during curding phase is said to aggravate leafiness.

Control: This disorder can be controlled to a great extent by selecting varieties according to their adaptability.



Blindness



Hollow Stem



Leafiness

That's are controlled by, proper irrigation, proper application of nitrogen, delayed pruning, balancing the internal nutrient, regulating temperature, the assimilation rate and the endogenous growth regulators can control cat-face etc.

Conclusion: Undesirable affects caused by a non- pathogenic agent is known as physiological disorder. Factors responsible for physiological disorders such as relative humidity, atmospheric conditions, cold injure and frost, wind injury, chemical injury, etc. The important physiological disorder is observed in Cauliflower that's are, whiptail, leafiness, buttoning, hollow stem and browning etc.

References

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