

Stimuplant: Crown Gall

Reg. No. 1380 Act 36/1947

Use *Agrobacterium radiobacter* isolate K84 bacteria for the prevention of crown gall on apricots, cherries, peaches, plums, roses and *Chrysanthemum* species.

Important: Not suitable for prevention of crown gall on grapevine.

Stimuplant is the first registered inoculant against crown gall in South-Africa.



Crown gall is a big problem in the nursery and flower industry. It can affect more than 350 plant genera including different species and cultivars within a group.

Crown gall can be identified as overgrowth that appears as galls on roots and at the bottom of woody plants such as stone fruits, eg. cherry and apricot trees. Infection occurs on cuts where plants are pruned or damaged.

Crown gall is a bacterial disease spread through infected material, pruning-shears and by soil or contaminated water. When the galls are near the soil surface, the disease could have been transferred through the soil, water or infected plants were purchased. When the galls are on cutting edges the disease could have been transferred through pruning-shears.

Plants infected sometimes grow slower and weaker as the plants grow older. Negative effects from galls formed on cutting areas are not as damaging as when the galls are formed on the soil surface or near the base of the plant.



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Source of infection:

Crown gall are caused by *Agrobacterium tumefaciens*, a gram negative bacteria which normally are associated with the roots of many different crops in the field. The bacteria can survive in a free-living stage in various soils for a period as long as there is good aeration, such as sandy loam soil where infected plants has been grown. The bacteria can also survive on the surface of roots of various weeds in orchards.

Plants infected in the first year and then transplanted, are the worst affected. Young plants that are heavily infected may appear dwarfed and unproductive.

Dosage of inoculants against Crown gall

Mix 1 packet (100 g) with 5 L of water

Treat	Quantity	Description
Seeds	2000	Submerge seeds for 30 seconds and plant immediately afterwards.
Small trees	50	Prune damaged roots and submerge roots left from small trees for 30 seconds in the mixture. Plant immediately afterwards. Trees must be treated again before transplanting.
Cuttings	300	Submerge cuttings for 30 seconds before applying rooting mixture.

If the required number of seeds, small trees or cuttings has been treated replace the mixture. If not replaced it may lead to poor affectivity of the inoculants.

*Refer to the label for full application instructions.

Factors promoting infestation:

Any cultivation practice that promotes wounds will promote infection.

Biological control:

Use of *Agrobacterium radiobacter* isolate K84 bacteria is effective for the prevention of crown gall on apricots, cherries, peaches, plums, roses and *Chrysanthemum* species. The biological control is only preventive and not curative. The time of application is vital for prevention of crown gall. The inoculant can be used to treat seeds, trees or cuttings. See the label for complete instructions.

The inoculants used for grapevine crown gall is not the same as for other crops



References:

Rose Manual (Rose Incorporated).

1. Moolman, G.W. 1997. glm@psu.edu
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3. Bloementeeltinformatie, 1988, Teelt van Kasrozen.
4. Horst, R.K. 1995, Compendium of rose diseases.
5. Van Zundert, C. 1993, Herkennen van ziekten en plagen in rozen.