

TAILORING OF HAULMS SERVE AS A NATURAL REMEDY AGAINST LATE BLIGHT OF PATATO AND NATURAL RESOURCE FOR BIOFERTILIZER - AN OBSERVATION

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During the post-tuberization period (75 days onwards) of potato plants the haulm cuttings can be executed at 90-95 days having no side effect on tuber yield. Beside this method is very effective to get rid of late blight of potato disease in storage condition. Haulm cutting also serve as a bio-fertilizer and minimize the expense of potato cultivation in the coming year.

Keywords: Anthesis; Bio-fertilizer; Haulm; Tuber.

Though most of the Solanaceous plants underwent reproductive propagation and are monocarpic, yet not all fruit bearing solanaceous plants develop seedling from seed. Interestingly, most of the potato plants under normal condition show vegetative propagation and die vegetatively after completion of tuberization. The present work aims at separating the role of haulms at post tuberization period.

Sliced tubers of *Solanum tuberosum*, having well defined vegetative buds, weighing 50 gm were surface sterilized with 0.1 % (w/v) $HgCl_2$ for 1 min and then washed thoroughly in tap water. Seed tubers were then sown during the month of November in the field in line (10 cm deep) on the ridges (at a spacing of 45 cm between rows and 15 cm between seed tubers) previously moistened and prepared with farmyard manure. These were then covered with soil. Sprinkling of water was done on the seed bed at regular intervals until sprouting. Two weeks after emergence of the plant, the soil between the lines was transferred around the plants in such a way that the plants were ultimately raised on straight ridges. Appropriate watering was done between the ridges at an interval of 10 days. Tuberization of the plants started at the age of 35 days. Anthesis occurred at the plant age of 45 days. Among the plants having uniform growth rate, in order to observe development of disease (late blight) symptoms under storage condition, physical manipulations (excision of haulms i.e. green aerial shoots) were done at the age of 95 days on 50% plants. Irrigation stopped before 10 days to removal of haulms.

Physical manipulations were done at 95 days when there is no positive role of haulm on tubers yield and its maturation. Tailoring of haulm at 95 days indicate that translocation towards tubers^{1,2} is not required or

hampered possibly due to maturation of the tubers. Excised plants having same tuber weight, the tubers, which were stored separately, found disease free even in post storage period compared to normal intact plants. At 95 days the proper maintenance of tuber yield due to a balanced nutrient exhaustion out of the storage organ^{3,4}. Thereby excision of haulms produce disease free tubers. Due to lack of haulms no fungicide spray is required and excised haulms at the same time may be used as bio-fertilizer in the next season. The results also emphasize that at post tuberization stage (after 95 days) haulms served to tubers as susceptible to disease development (i.e. caused deleterious effect to tuber) through source-sink variation⁴ during whole plant senescence which succumb to death in vegetative as well as in reproductive condition. Potato plants may provide some useful clues, which may help elucidating the mechanism of natural cultivation without utilization of chemical manure in other crops. Evidently, the presence of haulm after 95 days is more deleterious for development of disease than its absence.

References

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