BUD CHIP TECHNOLOGY:

A SUSTAINABLE METHOD OF SUGARCANE PROPAGATION

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Sugarcane (*Saccharum officinarum*) is a long duration crop of tropical origin. Sugarcane is traditionally propagated using three budded setts at commercial level. Germination percentage of sugarcane is poor and to compensate this very high rate of seed cane around 7-10 tons/ha is used. Seed cost in sugarcane accounts for 20% of production cost which is economically not viable. Bud chip method is more convenient and economical than the conventional method of sugarcane propagation. Bud chips are excised axillary buds of cane which holds great promise in reducing the rate of seed cane and improving the quality of cane. The bud chip technology entails excision of sugarcane bud with small material of the root band, germinating them in plant media followed by transplanting the seedlings into the main field. Bud chips are less bulky and are easy to transport. It has been reported that a small volume of tissue and a single root primordium adhering to bud is sufficient to ensure proper germination in sugarcane. Using bud chips about 80 % by weight of the seed material can be saved. It has been established that bud chip technology proved to be a low cost technology for exchange of seed material and it can be transported easily in carton boxes for regular varietal development programmes.

DEVELOPMENT OF BUD CHIP TECHNOLOGY

Development of bud chip technology of sugarcane propagation has been inspired by the success of SRI (System of Rice Intensification) under the project of WWF-ICRISAT (World Wide Fund for Nature and International Crop Research Institute for Semi-Arid Tropics). Dr. Biksham Gujja and his team extended the concept of SRI to sugarcane and SSI (Sustainable Sugarcane Initiative) was hatched under the project WWF-ICRISAT 2009. The project was taken up on large scale and farmers from states of Andhra Pradesh, Tamil, Nadu, Maharashtra, Punjab and Orissa were trained on the methodology of raising bud chip settlings. The project aimed at improving sugarcane cultivation in India. Bud chip method of raising settlings is one of the 6 principles of Sustainable Sugarcane Initiative (SSI) package. SSI encompasses use of less seed, wide soakings, intercropping, reduction of water use and chemical inputs in sugarcane production.

METHOD OF RAISING BUD CHIPS SETTLINGS

1.Select 8-10 month's age freshly harvested sugarcane stalks free from pests
2.Excise the bud using bud chipping device
3.Soak the chipped buds in water or in PGR (Plant growth regulators) solution for 2 hours
4.Treat the chips with fungicide, Bavistin 0.2% for 30 minutes
5.Shade dry the buds for planting
6.Plant the prepared bud chips in plastic trays or ploy bags filled with soil mixture of soil, sand and vermicompost in the ratio of 1:1:1
7.Frequently irrigate the chips planted in trays in nursery as and when required
8.Investigate the nursery regularly for any incidence of disease/pest
9.Seedlings are ready for transplanting in the main field in 30-35 days after planting in trays
10.Select healthy and disease free settlings for transplanting

ADVANTAGES OF BUD CHIP

*Significant saving of seed material of around 80%
*Transportation of seed material is easy as bud chips are less bulky
*Mechanical damage to seed material is reduced as bud chips can be transported, in cartons, poly bags or any other feasible packaging
*Bud chips can be handled and stored easily compared to large masses of cane stalks which reduces chance of rapid deterioration thus increasing the viability of buds and their subsequent sprouting
*Bud chip method is a resource saving technology
*The left over cane stalk after scrapping off bud chips can be used for making juice, sugar or jiggery
*Plant mortality rate could be reduced using bud chip technology
*Considerable saving of seed material makes it more economical method of propagation

FUTURE PROSPECTS

*Studies are required to explore bud chip viability for long duration storage and it's treatment
*Identifying suitable planting media for raising bud chips in nursery in particular area depending upon availability of resources
*Suitable planting methods and planting geometry need to be adopted for realising success of bud chips
*Training programmes and extension work must be conducted for more adaptation of this technology