

VINES VERSUS TRANSPLANTS FOR PLANTING IN YOUR MARSH

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Traditionally, cranberry beds have been established by utilizing vines that have been harvested from well-established beds. Such practices continue to work very well for there are a number of distinct advantages for this approach:

- The vines are harvested dormant and thus can be stored for extended periods in unsophisticated storages until planting can be accomplished in early spring.
- Planting of vines does not require expensive sophisticated equipment or specially-trained personnel.
- The planting density is relatively dense, thus it is not essential (although it certainly is desirable) for a very high percentage of the individual vine pieces to 'take' and survive.

However, during the last decade there has been increasing interest in investigating other sources of cranberry propagules as some of the disadvantages of utilizing vines has become apparent:

- A considerable number of years is needed to scale-up production of new cultivars or introductions to the point where large beds are available for harvest of the vines.
- There is little way to certify that the vines harvested off of older beds in fact only consist of the stated cranberry selection. Over the years, confusion as to identification of the original planting stock coupled with the very real possibility of contamination by seedlings and mutants has led to the present situation of numerous different subclones of a particular cultivar being grown, but all identified under the same name. Taking plant material from established beds also moves with it other organisms (such as pests, weeds, and diseases) that are present in that bed. This very concern a major reason why most all other major clonally propagated crops (especially other fruits and vegetables) have strong restrictions against propagating and distributing materials of unknown quality. Cranberries are unique in that they can be transported across most state boundaries with only minimal assurances of freedom from other contaminants.
- Planting is limited to spring. If weather conditions are poor for vine survival during or immediately after planting, a poor plant stand in the field results. This poor stand then leads to delayed fruit production and increased problems with weed pests.

The leading alternative propagation method to vines is the use of transplants generated from cuttings. With this approach, cuttings are multiplied, rooted and established in containers under greenhouse or shadehouse conditions and these plants, usually in active growth, are transplanted to the cranberry bed. Interest in the use of transplants has

stemmed from a number of the advantages associated with the use of this type of propagule:

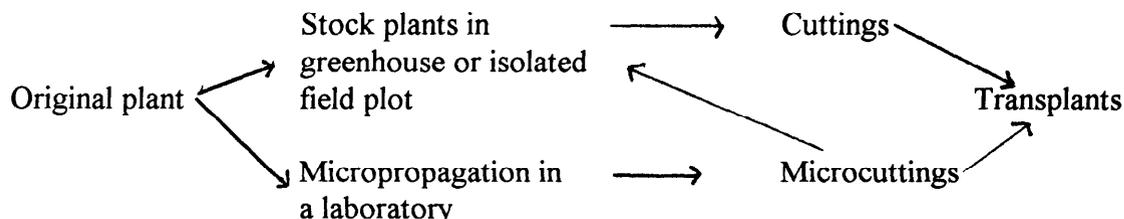
- Rapid scale-up of selections that are not widely available from vines harvested from previously planted beds is very feasible. One plant can be scaled-up to millions within a year's time.
- Transplants can be successfully planted at most any time of the year as long as irrigation is available.
- Transplant technologies can be readily integrated with established practices, including providing plants to fill-in voids in newly planted beds and in renovated parts of established beds.
- Transplants generally show a very rapid establishment of newly planted areas due to a more vigorous and aggressive vegetative (runner) growth during the year of the planting than is normally seen with vines.

There are, however, also a number of complications associated with the use of transplants:

- The use of transplanting machinery ('transplanters'), the most efficient way to plant transplants, is not generally familiar to cranberry growers nor are these machines commonly available in cranberry growing regions. Transplanters are commonly used in the vegetable (e.g. tomatoes), small fruit (e.g. strawberry, blueberry), tobacco, and forestry industries and some of these same units are appropriate for use in cranberry beds.
- Transplants are usually in active growth at the time of planting, thus they need more care both before and after planting than the dormant vines normally used in the cranberry industry.
- Cranberry transplants are not commonly available from commercial propagators. Since there has been little to no demand for cranberry transplants, propagators are not accustomed to working with this crop nor do they have stockplants from which to propagate or inventory from which to fill orders. Thus a grower interested in cranberry transplants must spend considerable time searching out a source and unless the propagator is approached well ahead of planting season, most demands cannot be met.
- Even if a propagation source for cranberry transplants can be found, the price of the transplants may be quite inflated when compared to transplants of other crops. This is due in part to the nature of the cranberry order which will be considered a special order by the propagation firm which has not previously dealt with this plant nor this industry. Most first-time orders will be small (under 100,000 units) and thus propagation efficiencies are low. In addition, cranberry beds are not replanted on any regular cycle, thus the propagation firm has no assurance of return business; scaling-up cranberry propagation for the first year will entail all the normal hassles of working with a new crop for the first time without any assurance that this acquired experience can be used in future years.

With the complications of working with professional propagators cited above, some growers in the East are producing their own transplants.

Cranberry transplants may be generated by any of a number of technologies that are standardly utilized in other industries:



If one is going to go to all the expense and bother of producing and/or utilizing transplants, then they should be very choosy about the source of stock from which all the rest of the cuttings will be generated. In particular, the grower should be assured of a number of quality factors:

- The plants must have a high likelihood of being the genetic selection that is wanted. This is no easy task as there is no standard certification program for cranberries that would monitor or even supply standard starting materials which have been screened for their genetic trueness-to-type. At present, probably the best assurance is that the original stock originated from a bed of known productivity and fruit quality. Ideally, propagules from this stock have been grown-on in cranberry beds and shown stability in these characteristics.
- If transplants are purchased, they should be well-established in the soil plug and definitely hardened-off to outdoor conditions.
- No diseases (especially root rots) or pests should be tolerated.

Another major way of assuring that top quality propagules will be obtained is to deal with an established, reputable, experienced professional propagator, ideally one that standardly sells woody, perennial transplants. Not only will this allow a background check through referenced growers of that firm's products, but such propagators usually are very concerned about the performance of their propagules and thus they can be relied upon for advice during the planting and early growth stages.

How many plants will you need? We have found that the maximum spacing is probably 18 inches between transplants. Plants spaced on 12 inch centers will give unbelievable cover the first year in any 'normal' growing season and may even yield a harvestable crop the second year. Closer spacing than 12 inches is too expensive to consider feasible except under unusual circumstances.

Cranberry transplants that have been ordered from a propagator should be planted as soon as possible upon receipt. Since the plants are in soil, they can be kept healthy by just watering, however this requires constant attention; once the transplants thoroughly dry-out, major losses will occur. The transplants will most likely be very vegetative and will

respond dramatically to a constant level of fertilization. After planting, they should be watered-in very well, adequately watered until established in the field, and fertilized heavily the first year.

As new selections begin to emerge from the active breeding and genetic improvement programs, some of which you will hear about at this meeting, you will undoubtedly be faced with deciding if you will use transplants. It may even come to pass that many of the newer cultivars will be distributed through a more tightly controlled program where some aspects of quality can be assured. In any case, please feel free to contact either Eric or myself if we can be of any assistance in helping you balance the trade-offs.