

Do Fall Crucifers Have A Place In Virginia?

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One of the projects I have been excited about this year is the evaluation of broccoli and cauliflower production in trials at Kentland Farms here in Blacksburg, and about 2 hours west at our Glade Springs AREC near Abington. For many VA growers, the words "broccoli project" brings back memories of the very successful work done with direct seeded fall broccoli in the early 90's by Charlie O'Dell and others from VA Tech in the Southside VA area. Though broccoli was shown in these studies to be a viable crop and a number of growers grew and marketed it successfully, tobacco as a crop ultimately proved to be resilient in the market and prevailed over time with its high value and familiarity of production with local farmers. Key issues came up as well with its production and marketing, including the cost and need for irrigation, and the market demand for an iced product.

One of the reasons we are re-visiting these crops is to focus on their potential for SW Virginia, where crucifers, in particular cabbage, have been grown for decades in the elevational regions near Hillsville. In addition, SW Virginia has seen the development and growth of two new vegetable growers associations/cooperatives, and the state SW Regional Farmers Market at Hillsville has increased in its prominence in the region as a viable market outlet for the region's produce. These area growers have expressed an interest in further development of crucifer crop potentials.

Though the issues of irrigation and demands for iced product are still with us, we believe that the production of cruciferous crops makes sense for our region, both from a climate and soils perspective, and from an eastern seaboard marketing perspective. In addition, film wrap technologies have progressed to the point that broccoli, a very perishable crop, can be air-cooled soon after harvest, and wrapped with these special films to maintain freshness in the market chain. This avoids the older standard of icing the product prior to shipping. Cost of shipping broccoli and ice across the country has driven California growers and shippers to explore this option, and it is likely that buyers will soon become accustomed to film wrapped and ice-less broccoli shipments. Growers in Virginia should be ready to deliver this product as the chain store buyers relax the icing requirement. We also have a long season of elevation proximity advantage; and from what I can tell from our studies, these VA hills can deliver a highly superior fall product.

Myself and Dr. Ron Morse in our Horticulture Dept. have been collaborating on these projects at Tech, with some funding through the Tobacco Indemnity grant funds secured by the growers from Appalachian Sustainable Development (ASD). Based in Abington, ASD is an organic growers group based in the SW part of the state, marketing organic produce in wholesale volumes.

Our trials have involved the evaluation of fall-harvested broccoli and cauliflower, with a focus on varieties and several cultural factors. In our more detailed study at Kentland, we have 5 varieties of broccoli and 3 cauliflower varieties which were no-tilled planted into several cover crop management regimes. Cover crops and no-till has significant importance for sloped fields culture in our region. Cover crops in our trial included millet alone and in combination with soybeans, and tilled soil as a check. As additional treatments the cover crops were either killed with a herbicide and rolled (conventional), or left alive (organic) and rolled prior to planting.

In addition the conventional system received synthetic sidedress fertilizer 3 weeks post plant (ammonium nitrate) and the organic system received a pelleted blood meal and sodium nitrate combination as the nitrogen source. At the Glade Spring Experiment Station, we planted 4 varieties of each crop in a conventionally tilled system, and as separate treatments are conducting a comparison of two organic nitrogen rates to a single standard rate of conventional N fertilizer.

For both trials we utilized field grown, bare-root transplants, started in late June in raised beds. The transplants were dug the last week of July and set the first of August with a no-till transplanter developed by Dr. Morse. First harvest began for the broccoli in early-mid September, and early October for cauliflower.

Though we have not yet begun to analyze our data, it has been impressive to me to observe the exceptional quality and flavor of the broccoli, and based on recent early harvest, the cauliflower as well. For growers who have been frustrated with broccoli as a spring crop and have written it off, the fall system of production bears looking at for our region. Yields have been exceptional, even though the weeks prior to transplanting brought excessive rain and "flushed transplants" that were not well hardened, and following transplanting excessive heat was experienced during mid-late August. Probably the easiest, earliest observation made is that the newer varieties of broccoli have much promise and the old standard we used "Premium Crop" has met its match. In fact it was a poor performer in comparison to the likes of Sussex, Everest, Windsor and a new numbered line we have in the trial. For cauliflower, we will be watching the self-blanching characteristic, which will eliminate the need for tying of heads to keep curds white. The no-till system also holds much promise, and from initial observations could very well be of comparable or better yield than the conventional tilled system. It is yet too early to pick out nitrogen source effects.

As our data becomes finalized, we should know more about not only variety performance, but how well these crops can perform in a no-till cover crop system, and how effective newer formulations of organic nitrogen compare to standard fertilizers. Dependent on further grower interest and funding availability, the next step is to explore the new film wrap technologies, and market acceptance of these crops, to help further explore if indeed, these crops have a place in Virginia.

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