

Planting Sugar Snap Peas into German Foxtail Millet For Pumpkin Market Synchrony Without Herbicides

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Introduction

This research project investigates low input vegetable production techniques for the fall production of edible-podded sugar snap peas *Pisum sativum cultivar macrocarpon Ser.* no-till planted into German foxtail millet *Setaria italica*. A comparison of pea planting dates was examined in 1999 and 2000 for synchronization of sugar snap pea harvest to coincide with the fall pumpkin market in order to add product diversity to on-farm direct market stand sales. In the Mid-Atlantic region summers are typically hot and droughty, while spring and fall conditions are generally moderate in both temperature and rainfall. The development of fall cropping and marketing options helps to spread production risks, and take advantage of a period of generally moderate weather conditions. Furthermore, the utilization of a summer annual cover crop in between an early spring and late fall crop greatly expands the farm production window, adds crop diversity, and distributes the crop production workload over a longer time period. In the future it may even be possible to receive carbon credit payments for producing summer cover crops solely for the sequestering of CO₂, a known greenhouse gas. German foxtail millet is heading 60 days after planting, and if properly timed will be senescing in the fall coinciding with the rapid growth of a fall planted sugar snap peas. Therefore, this research was designed to utilize the natural maturation of the millet to suppress fall weed growth when planting sugar snap peas avoiding costly conventional tillage, and herbicide applications.

Methods

For 1999 and 2000 project was designed by no-till planting strips of sugar snap peas *var. Sugar Ann* bi-weekly into a half-acre block of German foxtail millet in chronological succession. For each sugar snap pea planting date 8-rows were planted into the millet with a no-till corn planter in 30-inch rows. The peas were inoculated with rhizobium bacteria both years and treated with a planter box fungicide and insecticide seed-treater in 2000 only. Pea seeding rate was 5.7 seeds

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per foot of row to achieve a stand population of 150,000 seeds per acre, approximately 50 lbs/acre.

In 1999 the peas were planted on August 3, 17, 31, and September 28. The mid-September planting date was missed due to hurricane Floyd in 1999. In 2000 the peas were planted on August 8, 21, and September 9. It was determined in 1999 that planting dates past September 15 would completely miss the pumpkin market window of opportunity. The research trials were conducted at the University of Maryland Research and Education Center in Upper Marlboro, Maryland, on a Monmouth fine sandy loam soil. No-till Corn *Zea mays L.* was the preceding crop, and the fields were conventionally prepared prior to planting the German foxtail millet on May 28, 1999, and June 3, 2000. The millet was seeded at a rate of 25 lb/acre utilizing a Brillion® culti-packer seeder. Four weeks after planting, 30 lbs/acre of nitrogen was broadcast applied to the millet. Soil tests revealed optimum levels of phosphorus and potassium for the site.

Results and Discussion

In 1999 the percent pea stand counts for August 3, 17, 31, and September 28 were 0%, 10%, 60% and 80% respectively. For 2000 the percent pea stand counts for August 8, 23, and September 9 were 45%, 80% and 100%. It was quickly realized in 1999 that peas planted in late summer require fungicide seed treatments for protection from seedling damping-off. The early plantings in August had dramatically reduced stands in 1999, and even with planter-box seed-treaters the first planting in August 2000 was marginal. Examination of the harvest window corresponding to the planting dates revealed the following tabled results:

Pea Harvest Window Summary

Date Planted	% Stand	Harvest Window Dates
August 3, 1999	0	No harvest
August 8, 2000	45	September 13 - September 28
August 17, 1999	10	October 7 - October 21
August 23, 2000	80	October 2 - October 24
August 31, 1999	60	October 14 - October 28
September 9, 2000	100	Freeze damage immature pods
September 28, 1999	80	Freeze damage pre-flower

After reviewing the summary of harvest window dates for both years the August 17, 1999 and the August 23, 2000 produced a desired harvest interval corresponding to the fall pumpkin market window.

Conclusions

For the Southern Maryland region and Mid-Atlantic regions where the first killing or hard freeze (temperatures < 28° Fahrenheit) typically occurs around October 28th a recommended planting date for fall planted sugar snap peas no-tilled into a millet cover would be during August 15-25th. The peas were not evaluated for yield do to stand establishment inconsistencies, however, the peas did grow well in the senescing millet. Harvested pods were extremely clean and no protective pesticides were required. The peas produced were ideal for u-pick operations or daily harvest to supply farm stands. Harvest labor requirements for large fields would be costly and wholesaling returns most likely limiting.