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# Double Cropping Field Peas After Winter Wheat for Swine Rations

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## DOUBLE CROPPING FIELD PEAS AFTER WINTER WHEAT FOR SWINE RATIONS

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### Introduction

Most Iowa crop producers now rely on two crops, corn and soybeans, for their livelihood. This has led to many problems, including increased pest problems, such as with bean leaf beetles and soybean aphids, and more vulnerability to adverse weather and poor prices. It has also become increasingly difficult to compete in the world market when these commodities can be produced at a lower cost in other countries, such as Brazil. Crop producers are continually looking for a third crop to include in the rotation, but either the economics are not favorable or there is not a local market for the crop. Crop producers are also frustrated that very little of the profit in agriculture trickles down to the farmer.

One way to remedy this problem is to search for ways to add value to their produce. Field peas have not been widely grown in Iowa, partly because of the lack of a local market. Iowa pork producers have used soybean meal in swine diets for many years as the primary source of protein to balance diets. Research from Canada and Europe indicates that field peas can be substituted in swine diets with no adverse effects on pig performance (Zijlstra et al., 1997 and Kehoe et al., 1995). Thus there is a huge potential market for the crop in Iowa. Unlike soybeans, field peas do not have to be processed before feeding, so can be fed right off of the farm, thus adding value to the crop. Because it is a short season crop, it offers the opportunity of double cropping, thus increasing potential profits.

Field peas are usually planted in early spring so that they flower during cool weather (McKay et al., 2003). Recently there has been some success in planting peas in July following a wheat crop, so they flower when temperatures are becoming cooler in the fall. If farmers could plant field peas soon after the winter wheat harvest, profits could increase and agricultural production could become more sustainable by having more crops in the crop rotation. Another possible fit of field peas into a crop rotation is to plant the peas in the early spring and follow them with soybeans in June. An additional benefit to fitting field peas into a corn-soybean rotation is that the same equipment that is used for soybeans can be used for peas.

### 2004 Trials

Three varieties of field peas were planted after a winter wheat harvest with a drill on two planting dates in plots arranged in a randomized complete block design with 3 replications on the SE Iowa Research and Demonstration Farm near Crawfordsville in 2004. A delay in getting the field pea seed resulted in later than planned planting dates of July 28 and August 6. In addition 2 fields of over 30 acres of field peas were planted after a winter wheat harvest in two farmer's fields in early August. Seeding rates were over 300,000 seeds per acre, but stands were between

200,000 and 250,000 plants per acre.

Field peas are very tolerant to cool temperatures early in the vegetative stage, partly due to the hypogeal emergence of peas, with the growing point staying below ground. Unfortunately peas in the reproductive stage are not as tolerant to cool temperatures. A frost of about 28F occurred near the first of October. Although the plants showed little effect from the cold temperatures compared to other plants in the area, the cold did affect the pods and the plants did not continue filling after the frost. No harvestable peas were obtained at any of the sites. The peas continued to bloom into late October. Another problem that occurred with the research farm plots was a powdery mildew infestation which would have affected the yield if they had matured.

### **Plans for 2005**

In 2005, plans are to continue investigating the potential for raising field peas in a double cropping system. Peas will be planted 2-3 weeks sooner in July and earlier maturing pea varieties will be selected. Seeding soybeans after a spring field pea crop will also be investigated.

Swine feeding trials will also be conducted in 2005. Iowa-grown peas will be fed at different inclusion rates in swine diets. Additionally, comparisons between spring planted peas and summer planted peas will be conducted to check for different performance levels. The testing facility which has been selected to conduct the tests is a farmer-owned 1200 head wean to finish building. The building consists of 6-200 head rooms each supplied from a separate bulk bin. This site will allow for three treatments with two replications of each. Long-term, hoop building swine producers and deep-bedded systems may be quicker to adapt this technology due to their need for bedding materials. Wheat straw has greater value to this group.

### **References**

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