OHIO STATE UNIVERSITY EXTENSION

Double Crop Soybean Production Guidelines

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HORTICULTURE AND CROP SCIENCE

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INTRODUCTION

Double cropping is the establishment and harvest of a second crop (usually soybean) the same season that a first crop is harvested (usually a small grain). There are two primary requirements for profitable double cropping:

- There must be adequate time for the production of the soybean crop.
- There must be adequate water to produce both crops, whether from stored soil moisture, rainfall, or irrigation.

Double crop soybean management differs than traditional, full-season soybean management. Double cropping with soybean drastically reduces the elapsed time between successive crops and therefore can greatly increase the disease pressure of both soybean and small grains. Here, the differences in management practices are discussed.

PLANTING DATE

The date of planting has more effect on soybean grain yield than any other production practice. Early planting of double crop soybean is essential for success and can be accomplished two ways:

1) Harvesting wheat when grain moisture is 18 to 20 percent. Wheat grain is sometimes accepted at a higher moisture content. Otherwise, grain can be dried using air with or without supplemental heat to dry the grain. Wheat harvested at a higher moisture generally has greater yield and quality. When dry grain is re-wetted in the field, grain may sprout, yield and test weight will be reduced, and vomitoxin may increase. Grain will be significantly discounted or rejected for low test weight and high vomitoxin levels.

2) Planting double crop soybean after winter barley. Winter barley is harvested approximately two weeks earlier than winter wheat, promoting an earlier soybean planting date.

RELATIVE MATURITY

Relative maturity (RM) has little effect on yield when soybeans are planted during the first three weeks of May. However, the effect of RM can be large for late plantings. When planting soybean late, the latest maturing variety that will reach physiological maturity before the first killing frost is recommended. This is to allow the soybean plants to grow vegetatively as long as possible to produce nodes where pods can form before vegetative growth is slowed due to flowering and pod formation.

Table 1. Recommended relative maturity (RM) ranges for soybean varieties planted in June and July in northern, central, and southern Ohio.

	Planting date	Suitable RM
Northern Ohio	June 1-15	3.2-3.8
	June 15-30	3.1-3.5
	July 1-10	3.0-3.3
Central Ohio	June 1-15	3.4-4.0
	June 15-30	3.3-3.7
	July 1-10	3.2-3.5
Southern Ohio	June 1-15	3.6-4.2
	June 15-30	3.5-3.9
	July 1-10	3.4-3.7

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ROW SPACING

Double crop soybeans should be produced in narrow rows- 7.5 or 15-inch row spacing. The later in the growing season soybeans are planted, the greater the yield increase due to narrow rows. Soybeans grown in narrow rows produce more grain because they capture more sunlight energy, which drives photosynthesis.

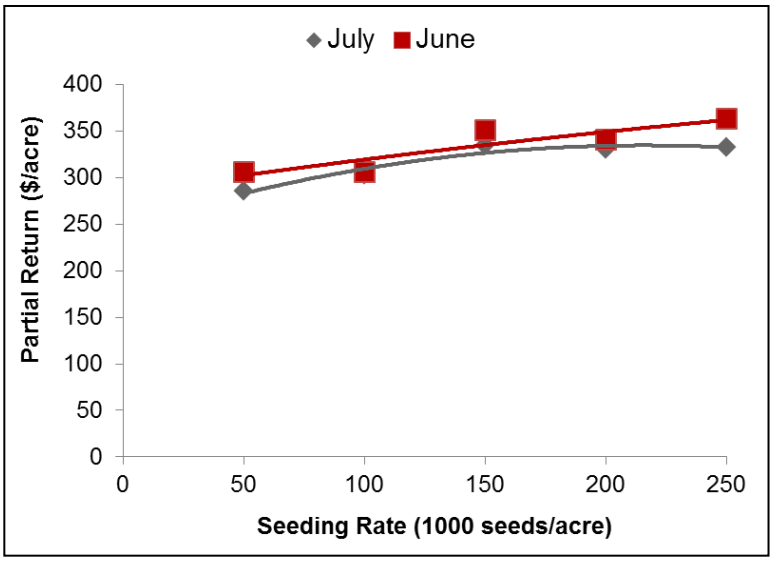

Figure 1. Partial economic return by seeding rate for double crop soybean planted in Clark County, Ohio.

SEEDING RATE

Harvest population for mid- to late June plantings should be between 130,000-150,000 plants/acre. Harvest population for early July plantings should be greater than 180,000 plants/acre.

Harvest plant population is a function of seeding rate, quality of the planting operation, and seed germination percentage and depends on such things as soil moisture conditions, seed-soil contact, disease pressure, and fungicide seed treatments.

Figure 1 shows the partial economic return by seeding rate (grain price of $9.44/bu and seed cost of $0.43/1000 seeds) for double crop soybeans planted on June 29 and July 11 in Clark County, Ohio. In June, the optimum seeding rate was > 250,000 seeds/acre while in July, the optimum seeding rate was 213,000 seeds/acre. Average harvest population for soybean planted in June at 250,000 seeds/acre was 143,200 plants/acre (57% of seeding rate) due to heavy rainfall after planting. Average harvest population for soybean planted in July at 250,000 seeds/acre was 204,000 plants/acre (82% of the seeding rate).

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