

Many production and environmental aspects influence soybean development when the crop is planted immediately after wheat harvest (so called double-cropped soybean).

Some of these influences are:

- Soil moisture after wheat harvest.
- Amount and distribution of wheat residue.
- Nutrient availability.
- Soybean planting time.
- Soybean maturity group.

Objectives

- Identify double-crop yield gap, using full-season soybean yield as a benchmark.
- Identify and rank factors affecting double-crop soybean yield.
- Establish decision routes, as a guide for expected yield.
- Share data collected among Kansas farmers and provide tips for improving management practices.

Methods

- Worldwide data collection
- Dividing data in sub-datasets by objective
- Unfolding a yield gap evaluation and probability analysis

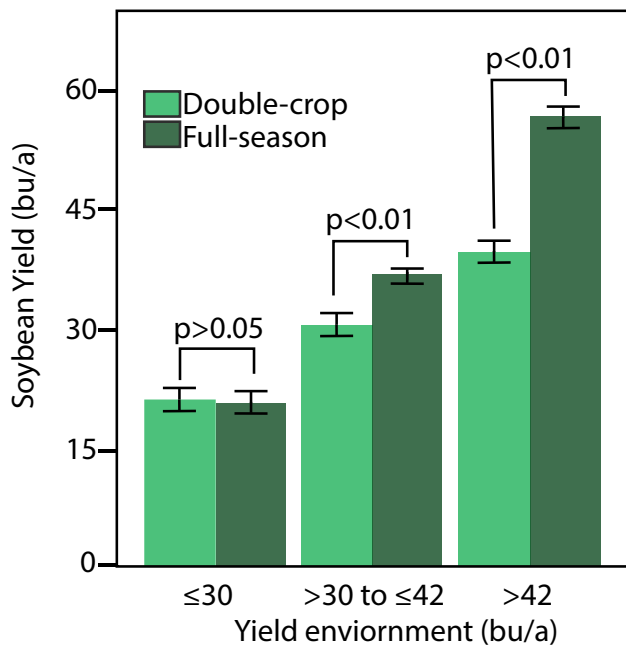


Figure 1. Double-crop compared to full-season soybean yields. Yield environments were divided in three yield ranges ≤ 30 bushels per acre, >30 to ≤ 42 bushels per acre, >42 bushels per acre.

Results

The difference between double-crop and full-season soybean yields showed that as yield environment improves, greater differences in yield are observed between these soybean systems. Although double-crop soybean yield is greater in better environments.

Double-crop soybean yield can be estimated based on the previous wheat yield. When wheat yield is greater, double-crop soybean yield has lower probability of yielding more than wheat.

The factors affecting double-crop soybean yield are: previous wheat yield, soybean planting date, and maturity group. The inference tree (Figure 3) estimates the proportion

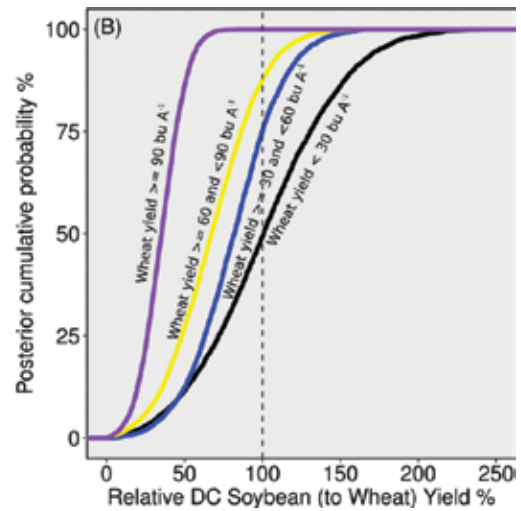


Figure 2. Posterior predictive probability for double-crop soybean (to wheat) yields for four yield environments of previous wheat yield < 30 bushels per acre, ≥ 30 to < 60 bushels per acre, ≥ 60 to < 90 bushels per acre and ≥ 90 bushels per acre.

Table 1. Posterior predictive probability for double-crop soybean (to wheat) yields for four yield environments of previous wheat yield < 30 bushels per acre, ≥ 30 to < 60 bushels per acre, ≥ 60 to < 90 bushels per acre and ≥ 90 bushels per acre.

Wheat yield bu/a	Probability of double crop soybeans yielding at least the same as wheat (%)	Probability of double crop soybean being at least 50% of wheat yield (%)
≥ 90	0	15
≥ 60 and < 90	15	75
≥ 30 and < 60	25	90
< 30	50	90

