

WHEAT AND GRAIN PROJECT REPORT 2007 REPORT

Title: Development of a Seed-producing Sunn Hemp Cultivar for Alabama

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Objectives: To screen sunn hemp germplasm for ability to produce seed and to select plants capable of producing seed in Alabama while maintaining good agronomic characteristics

Research plan:

1. Plant selection blocks at the Plant Breeding Unit in Tallassee and at the Field Crop Unit in Shorter with several thousand plants. The plants with best agronomic traits that can produce seed will be selected..
2. Establish isolation plots for seed increase of selected populations that have good potential based on field observations.
3. Study planting and harvesting methods to produce sunn hemp seed.

Results:

Two large breeding blocks were planted in April 2007 at the Plant Breeding Unit and one at the Field Crop Unit with seed from plants selected in 2006 for ability to produced good quality seed in Alabama, shorter plants and early maturity. Seedings took place late April 07. Thus there was enough soil moisture for the plants to emerge and grow some before the drought set on Central Alabama. The breeding blocks at PBU needed to be watered a few times whereas plantings at FCU had to be irrigated through most of the season. Two seed increase blocks of the selections conducted in 2006 at PBU and FCU were also planted. A fair amount of seed was harvested what would allow us to plant more experiments in 2008.

Two experiments were planted at FCU and three at PBU . One was to measure seed yield at PBU and FCU, the second was to measure biomass production at flowering time at PBU and FCU and the third was to measure the effect of herbicides on sunn hemp weeds at PBU only. Seeding rate for seed production was found to produce the highest seed yield at 16 lb/a. Seed yield at PBU without irrigation was up to 1,192 lb/a whereas at the FCU under irrigation was up to 1,728 lb/a. In addition, biomass residues were estimated to be up to 250 lb/a at PBU and up to 1000 lb/a at FCU.

Biomass production tests were planted 24 and 19 April 07 at PBU and FCU respectively. Biomass yield at PBU ranged between 3,788 and 4,400 lb/a (80 and 94% of Tropic Sun, respectively) for the selections and was 4,689 lb/a for Tropic Sun. At the FCU biomass for the selections ranged between 1,118 and 1,244 lb /a of dry matter (73 and 82% of Tropic Sun, respectively) whereas Tropic Sun yielded 1,525 lb/a.

The herbicide test was planted 27 Jul 07. Although the sunn hemp plants emerged and grew, the experiment failed because of the drought. There was no herbicide effect because there was not herbicide action due to the dry soil.