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COTTON/WHEAT INTERSEEDING IN TERRELL COUNTY, GEORGIA USING MODIFIED ON-FARM EQUIPMENT

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Abstract

The concept of interseeding cotton into standing wheat has been deemed successful from studies conducted at Clemson University in South Carolina. Field demonstrations were conducted to demonstrate interseeding cropping systems to producers in Terrell County. Standard production equipment was modified to allow producers to use existing equipment to obtain interseeding production data for Georgia to determine the feasibility of interseeding. In 2000, cotton that was interseeded into wheat yielded 1046 pounds of lint per acre. The conventional cotton yielded 1111 pounds of lint per acre. Interseeding cotton yields were lower than conventional cotton by 65 pounds of lint. The lower yields may have been influenced by a reduced stand in the interseeded cotton plots. This was attributed to a poor seed to soil contact. The lower yield was offset by a wheat yield of 53 bushels per acre. In 2001, interseeding yields were lower than strip-till yields by 100 pounds of lint per acre. The yield reduction was offset by a wheat yield of 62 bushels per acre. Interseeding may fit into management systems that allow time for fall tillage and planting of wheat in rows. The benefits of controlled traffic are a plus in the interseeding system.

Introduction

Double cropping winter wheat and cotton using interseeding has been studied at Clemson University. Kalilian, et al. (1991) and the 1991 Cotton Production Research Conference explained the concept of interseeding. They reported on studies done evaluating several different cropping schemes during 1990. Hood, et al. (1992) gave a detailed description of the interseeding system for wheat/cotton and for wheat/soybeans. They concluded that interseeding of cotton was feasible in the Southeast. They concluded that interseeding has the advantages of conserving soil and energy, while maintaining cotton yields near the level of full-tillage, full-season cotton. Interseeding gave cotton yields greater than double cropping after wheat harvest. Interseeding would allow the farmer to capitalize on the economic advantages of two crops per year on the same land. Interseeding demonstrations have been conducted in Terrell County, Georgia, starting in 1997.

Materials and Methods

Cotton requires under row subsoiling in the majority of Georgia soil types. Prior to planting wheat in the fall, under row subsoiling was performed. Two methods were used. One was the conventional tillage method of subsoiling and bedding. The beds were knocked off prior to planting wheat. The second method was using conservation tillage methods of under row subsoiling and tilling a narrow strip. Wheat was planted in strips that allowed planter units to operate without obstruction and for tractor tire traffic. A Clemson Interseeder was initially used and later an 18 foot- wide, three point hitch grain drill was used. This allows for a 6-row cotton planting system.

The 2000 demonstration soil type was a Greenville Sandy Loam. The previous corn crop was disk-harrowed two times. In the interseeding plots, rows were laid out using a ripper-bedder. Pioneer 2684 was planted in December at a rate of two and one-eighth bushels per acre. A 20 foot grain drill with six inch row spacings was used to plant the wheat. A drill metering unit blocked off every 36 inches for future cotton rows, and three rows were left out behind the tractor tires as tractor tramways.Wheat rows averaged 8.64 inches. A John Deere planter was modified by replacing the guage wheels with wheels that had a total width at the ground of 6 ½ inches. Cotton variety DP 458BG was planted at 2.0 plants per foot between the

wheat rows on May 13 before wheat was gathered. Three weeks later wheat was harvested. The average wheat yield was 53 bushels per acre. The conventional cotton was ripped and bedded in the spring, and planted on May 13, 2000.

The 2001 demonstration soil type was a Greenville Sandy Loam. Rows in the interseeding plots were laid out using a strip-till following peanuts. Pioneer 9663 was planted in December at a rate of two and one-eighth bushels per acre. A 20 foot grain drill with six inch row spacings was used to plant the wheat. The grain drill used in the 2000 field demonstration was used in 2001, and set up in the same configuration. A John Deere planter was modified by replacing the gauge wheels with wheels that had a total width at the ground of 6 ½ inches. Cotton variety DP 458BG was planted at 2.0 plants per foot between the wheat rows on May 5 before wheat was gathered. The wheat was harvested on May 28. The average wheat yield was 62 bushels per acre. The conventional cotton was strip-tilled in the spring and planted on the same day.

Results

In 2000, cotton that was interseeded into wheat yielded 1046 pounds of lint per acre. The conventional cotton yielded 1111 pounds of lint per acre. Interseeding cotton yields were lower than conventional cotton by 65 pounds of lint. The lower yields may have been influenced by a reduced stand in the interseeded cotton plots. This was attributed to a poor seed to soil contact. The lower yield was offset by a wheat yield of 53 bushels per acre. In 2001, interseeding yields were lower than strip-till yields by 100 pounds of lint per acre. The yield reduction was offset by a wheat yield of 62 bushels per acre. Interseeding may fit into management systems that allow time for fall tillage and planting of wheat in rows. The benefits of controlled traffic are a plus in the interseeding system.

Acknowledgment

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References

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Table 1. Relay Cropping wheat/cotton Yields 2000*

	Conventional	Relay Cropping	Difference
Seed cotton (lbs/acre)	3202	3013	189
Lint (lbs/acre)	1111	1046	65
Average Plot Acreage	0.26	.24	

*Average of 2 replications, @ 35 percent turnout

Table 2. Relay Cropping wheat/cotton Yields 2001*

	Strip Till	Relay Cropping	Difference
Seed cotton (lbs/acre)	2341	2117	224
Lint (lbs/acre)	935	835	100
Average Plot Acreage	0.10	0.10	

*Average of 3 replications @ 40 percent turnout