

# TECHNOLOGY, MANAGEMENT PRACTICES AND COSTS OF COTTON PRODUCTION

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## Introduction

Profitability in agriculture varies from year to year as it does for other sectors of the economy. Since cotton is an international commodity, world conditions play a large roll in revenues. Market variations are largely beyond the producer's control. One direct way to improve profitability is to control production costs. Nearly half the cost of producing cotton is related to seed, fertilizer, chemicals, and custom work. The 1997 USDA costs of production estimates show that 45 percent of the 1997 variable production costs are attributed to these factors of production.

The 1997 Agricultural Resource Management Study (ARMS) surveyed farmers in 12 states in the cotton belt to find out what types of strategies they were using to combat weeds, insects, and disease. In addition to knowing what strategies growers were using, we wanted to know about the characteristics of the operators using those strategies. Specific questions asked were:

- Did you modify cultural practices?
- Did you use resistant seed?
- What about herbicide/insecticide use?

Early analysis of the results of that survey are presented here.

## Conclusions

The ability to control or alter costs associated with seed, fertilizers, chemicals, and custom work clearly affects the profitability of the cotton enterprise. Inasmuch as growers are able to reduce spraying for pests, future expenditures for pesticides and expenditures related to the application of those pesticides will diminish. As a result, expenses for fuel, machinery repair and replacement, custom work, and labor will decline, further improving cotton's profitability. Controlling production costs is perhaps the most direct way for growers to control returns. Variability in markets will likely continue and is generally outside the operator's control.

### What Lies Ahead?

Continuing research on resistant seed varieties will help reduce the use and need for further improvements in pesticides and insecticides.

Further spread of the boll weevil is being controlled as more areas join the boll weevil eradication program.

Further analysis of the 1997 ARMS is planned. A series of reports detailing costs and returns in cotton production, structural characteristics of cotton farms, technology, and management issues are planned.

For the latest costs and returns estimates and analysis of cotton costs and returns, see the ERS Farm Business Briefing Room, at [www.econ.ag.gov](http://www.econ.ag.gov)  
Management Practices Growers Use to Reduce Pest Problems

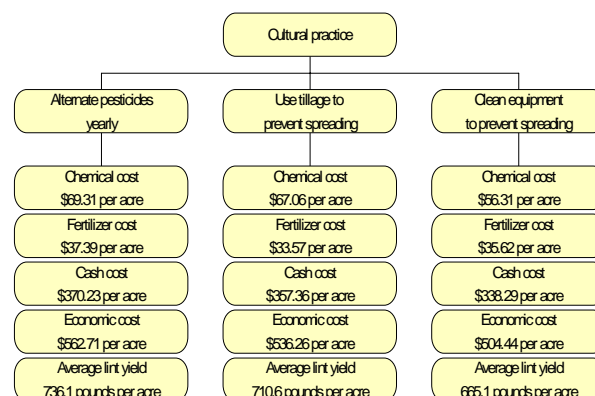
- Adjust cultural practices

Changes in cultural practices

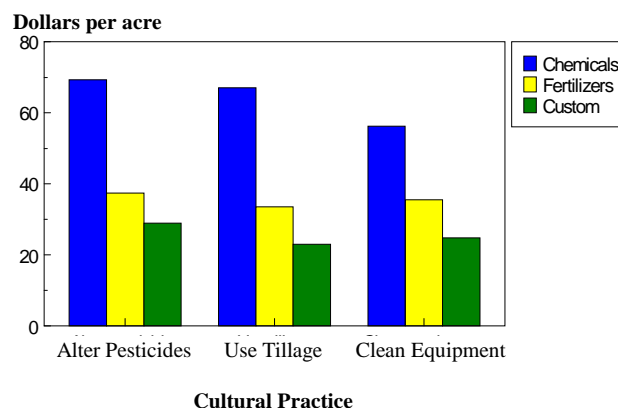
	Weeds	Insects	Both
Alternate pesticides year to year	9.48	41.95	48.56
Use tillage to keep pests from spreading	30.82	8.45	60.73
Clean tillage equipment to prevent spreading pests	32.09	*	63.18

\* disclosure

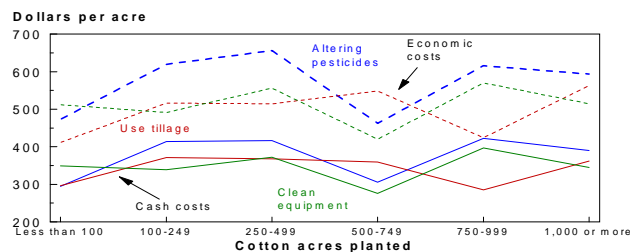
Costs and yields vary with cultural practices



Selected production costs for farms using different cultural practices



## Selected production costs for farms by cultural practice and enterprise size



- Use resistant seed

Herbicide resistant seed was used on 10 percent of cotton acres in 1997 (Roundup or Buctril resistant)

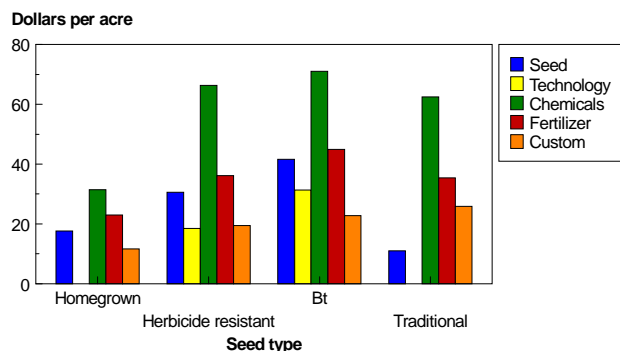
Bt seed was used on 13 percent of cotton acres in 1997

Reasons for using resistant seed	Seed type	
	Herbicide-Resistant	Bt
	Percent using	
Increase yield and lower costs	61	59
Lower pesticide costs	22	38

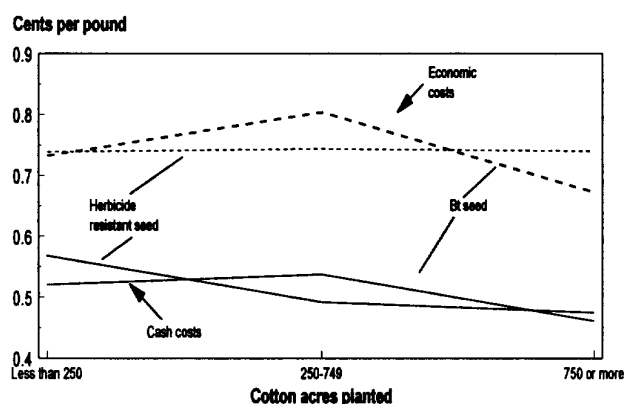
## Costs and yields vary by type of seed used

Seed type		
Traditional	Herbicide resistant	Bt
Seed cost \$0.75 per pound	Seed cost \$0.94 per pound	Seed cost \$0.91 per pound
Seeding rate 12.5 pounds per acre	Seeding rate 10.8 pounds per acre	Seeding rate 10.6 pounds per acre
Technology fee \$0	Technology fee \$16.68 per acre	Technology fee \$30.95 per acre
Chemical cost \$63.35 per acre	Chemical cost \$61.42 per acre	Chemical cost \$68.68 per acre
Fertilizer cost \$39.66 per acre	Fertilizer cost \$38.62	Fertilizer cost \$52.44 per acre
Average lint yield 670.3 pounds per acre	Average lint yield 679.4 pounds per acre	Average lint yield 792.1 pounds per acre

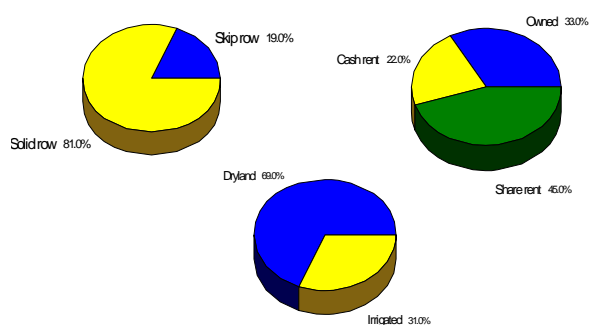
## Selected production costs for farms using different types of seed



## Selected production costs for farms by seed type and enterprise size

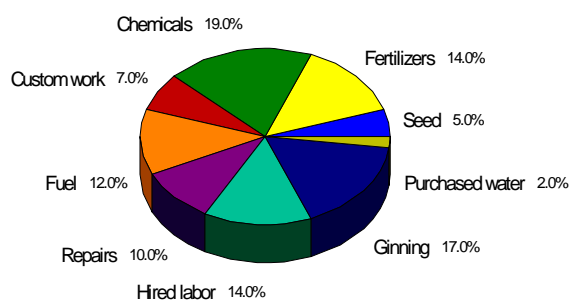


In general, most growers plant solid row cotton on share-rented dryland acres.



Permanent land improvements are not common	
Terraces	16 percent
Contour farming	12 percent
Grassed waterways	9 percent
Tile drainage	5 percent
Water furrows	15 percent

## Variable cash expenses



# Selected production costs by enterprise size

