



Tobacco Management: Optimizing Profits

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Crop enterprise budgets developed by the Agricultural Economics Department at the University of Kentucky indicate that the cost of producing one acre of tobacco, including fertilizer, pesticides, equipment, structure maintenance, and labor, can range from approximately \$2,600 to \$3,300, depending on tobacco type and labor costs. These production costs can remain relatively constant over a yield range of 2,000 to 3,000 lb/acre.

There is no magic involved, just the following:

- *planning,*
- *following recommended cultural and chemical practices, and*
- *paying attention to timing.*

Table 1 shows how, when input requirements are held constant, per pound production costs can vary depending on yield. The difference in net returns between a 2,200 and 2,600 lb/acre yield at an average selling price of \$1.75/lb would be \$700! Planning and timing make the difference.

Remember: follow the helpful tips listed here before you set your next crop.

Helpful Tips

Table 1. Production Cost (per pound of tobacco produced).

Based on direct costs of \$2,586, \$2,680, and \$3,230/acre for burley, air-cured, and dark-fired tobaccos.

Yield (lb/acre)	Production Cost (\$/lb)		
	Burley	Air-Cured	Fire-Cured
2000	1.29	1.34	1.61
2200	1.17	1.22	1.47
2400	1.08	1.12	1.35
2600	0.99	1.03	1.24
2800	0.92	0.96	1.15
3000	0.86	0.89	1.08

Soil Test

Manganese toxicity due to low soil pH can lower yields by up to 500 lb/acre. Lime should be applied at least 6 months prior to planting for best crop response. Use liming materials with a high relative neutralizing value (RNV). Positive crop response to molybdenum is seen across all soils in Kentucky. Transplant water treatments of molybdenum are easy and inexpensive.

Fertilize according to soil test rather than out of habit. Excessive fertilizer can lower pH by more than one unit and may burn the roots, resulting in reduced rather than increased yield. However, tobacco grows in a relatively short season compared to other crops, so don't under-fertilize. Consider applying 1/2 of the total nitrogen required pre-transplant and sidedressing the remainder 3 to 4 weeks after setting. If the pH is low and lime was applied within 3 months of setting, use nitrate-nitrogen (sodium or calcium nitrate) to prevent lowering the soil pH.

Practice Crop Rotation

Rotation into sod ground will lessen disease incidence and help control problem weeds.

Avoid Working Wet Ground

Working ground that is too wet or trying to "disk it dry" results in the formation of a compaction layer that can cause poor and uneven crop growth.

Don't Set Tobacco Too Early

Container-grown transplant production systems allow you to schedule transplanting time. It is not unusual to have maximum daily high temperatures in the 50s through the middle of May. Setting tobacco from mid-April through early May (May 10) can be risky.

Tobacco will not grow well in cool, wet soils. Growth will be stunted and uneven and transplants will be more susceptible to diseases. An uneven crop will require higher labor inputs and can result in yield and quality loss. Combi-

nations of weather and disease stresses can cause plants to bloom prematurely.

Select a Variety Suited to Your Crop Conditions

If you do set early, be sure the variety selected has black root rot resistance. Availability of container-grown (“float”) plants means that you can try new varieties on a small scale to determine if a different variety is more suited to your cultural conditions.

Select the Right Plant Population

You want a plant population that will maximize yield and reduce handling. Consider reducing plant populations, especially in burley. When traditional plant beds are used producers commonly set 8,000 plants/acre and do not reset; most set an extra row or two to allow for the 5 to 10% stand loss associated with bed plants. Actual population of a patch set from bed plants at 8,000 plants/acre with an 8% stand loss would be around 7,400 hills per acre.

If you are using container plants your final stand would likely be around 7,995 plants per acre with no increase in yield compared to an initial population of 7,400 plants per acre, and leaf from the higher population would be lighter bodied tobacco. Setting 7,400 rather than 8,000 container-grown plants translates into efficiency.

Reduced plant populations means more acres can be set from a greenhouse. Labor costs will be reduced throughout the growing and curing season. Six hundred fewer plants are set, topped, cut, and spiked. One hundred fewer sticks are picked up, housed, and taken down. Six hundred fewer stalks are stripped. Tobacco is better bodied, may cure better, and yields will be no different from the those of the 8,000 plant population. Your goal is to strive for more pounds per stalk.

Plant populations for dark tobacco, regardless of type, should be 4,500 to 5,000 plants per acre.

Match Pesticides with Pests

Keep weed maps of your fields. Scout for insects and diseases on a regular basis and treat when necessary. Try not to think of chemical applications in terms of dollars per acre; think in pounds of tobacco. At an average selling price for tobacco of \$1.75/lb you only have to gain about 60 lb of tobacco/ acre to cover the cost of a \$100 chemical treatment. Any gain in yield above this 60 lb is profit.

Some pesticide treatments may be considered “insurance,” but as a general rule chemical treatments should pay rather than cost. Research studies have shown that when insecticide applications for aphid control are made before a 20% infestation level is reached, yield can be increased by more than 400 lb/acre compared to no control.

Top on Time and Control Suckers

Do not allow burley to bloom beyond 25% (1 plant in 4 with 1 flower open). Dark tobaccos should be bud topped. Timely topping means:

- *less lodging,*
- *less insect pressure,*
- *better sucker control,*
- *improved quality, and*
- *higher yields.*

Dark tobacco topped at the bud elongation stage has consistently yielded from 200 to 400 lb/acre higher than tobacco topped at 25% bloom.

At the correct topping time the tops will “snap” out quicker and cleaner than tobacco in bloom. Depending on growing conditions and variety, burley is normally topped to 19 to 21 leaves and dark is topped to 14 to 16 leaves.

Allow Tobacco to Ripen Before Harvesting

Harvesting ripe tobacco (cutting 3 to 4 weeks after topping for burley and 4 to 6 weeks after topping for dark types) means:

- *better body,*
- *higher yield,*
- *easier curing, and*
- *improved quality.*

Manage Barns to Control Curing

A good tobacco crop can be ruined in the barn. Houseburn alone can cause yield reductions of 10 to 15% in addition to lowering quality. Therefore, the condition of the tobacco should be closely monitored, especially early in the curing process, and ventilators should be opened or closed depending on weather conditions.

A management strategy that is carefully planned with particular attention paid to timing will increase yield per stalk without increasing production costs — and this means more profit per acre.