



University of Kentucky
UKnowledge

Agronomy Notes

Plant and Soil Sciences

7-1970

Yield and Value of Burley 21 Tobacco as Influenced by Nitrogen Nutrition, Suckering Practice, and Harvest Date

J. L. Sims
University of Kentucky

W. O. Atkinson
University of Kentucky

Right click to open a feedback form in a new tab to let us know how this document benefits you.

Follow this and additional works at: https://uknowledge.uky.edu/pss_notes



Part of the [Agronomy and Crop Sciences Commons](#)

Repository Citation

Sims, J. L. and Atkinson, W. O., "Yield and Value of Burley 21 Tobacco as Influenced by Nitrogen Nutrition, Suckering Practice, and Harvest Date" (1970). *Agronomy Notes*. 173.
https://uknowledge.uky.edu/pss_notes/173

This Report is brought to you for free and open access by the Plant and Soil Sciences at UKnowledge. It has been accepted for inclusion in Agronomy Notes by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

*
630.717
Ag 86

* CROPS
* SOILS

AGRONOMY NOTES

DEPARTMENT of AGRONOMY Lexington 40506

RECEIVED
JUL 9 1970

Vol. 3, No. 4

Agriculture Library
UNIVERSITY OF KENTUCKY

July, 1970

YIELD AND VALUE OF BURLEY 21 TOBACCO AS INFLUENCED BY NITROGEN NUTRITION, SUCKERING PRACTICE, AND HARVEST DATE

J. L. Sims and W. O. Atkinson

An experiment was conducted in the field during 1966 on Maury silt loam soil to obtain information of the effects of agronomic factors on yield and value of Burley 21 tobacco. Ammonium nitrate fertilizer at varying rates, and concentrated superphosphate and potassium sulfate at constant rates, were broadcast and disked in after plowing and before transplanting. All plots received irrigation water (sprinkler system) to supplement rainfall when soil moisture dropped below 60% of available moisture-holding capacity. Sucker control practices utilized were (a) no topping - no suckering, (b) topping - no suckering, (c) topping - hand suckering, and (d) topping - MH-30. Half of the tobacco was harvested early (about 1 week prior to maturity) and half late (1 week past maturity). However, N fertilizer at the 400 lb/acre N rate delayed maturity about 2 weeks beyond that for tobacco treated at the 100 and 200 N rates. Thus all the early harvests were made 1 week prior to maturity, the 100- and 200-lb N treated plots 2 weeks later, and the 400-lb N plots 4 weeks after the early harvest.

Suckering practice greatly influenced yields of cured leaf but the effects were not the same at both harvest dates (Table 1). In plots not topped or suckered, or plots

Table 1. — Influence of suckering practice and harvest date on yield and value of Burley 21 leaf

Suckering practice	Harvest time	Yield, lb/acre	Value, Dollars/cwt	Value, Dollars/acre
No Topping	early	2468	63.63	1571
	late	2281	64.50	1472
	average	2375	64.06	1521
No Suckering	early	2688	66.11	1777
	late	2446	65.47	1600
	average	2567	65.79	1689
Hand Suckering	early	2711	64.75	1775
	late	2837	62.47	1772
	average	2774	63.61	1764
MH-30	early	2920	65.23	1904
	late	3157	63.36	2001
	average	3038	64.30	1953

topped but not suckered, yields were higher at early harvest than at late. In contrast, in plots where suckers were controlled by hand suckering or MH-30 treatment, yields were highest at late harvest. The lower weights of late harvested tobacco that had not been topped or suckered could be the result of movement of dry matter from leaves to tops and suckers, or of greater loss of lower leaves. The high weights of late harvested, suckered tobacco resulted from dry matter production over a longer period of time and the dry matter produced being largely retained in the leaves.

Plots treated with MH-30, which had the best sucker control, produced 3038 pounds of leaf per acre, whereas plots with plants not topped or suckered (least sucker control) yielded only 2375 pounds of leaf. The high yields from the plots treated with MH-30 presumably resulted from better control of suckers by this chemical than by other suckering practices. However, other data indicate that stalk weight of MH-30 plants also was lower than in other treatments.

Suckering practice affected value per 100 pounds very little (Table 1). Value per acre increased with degree of sucker control. Tobacco treated with MH-30 produced leaf valued at about 400 dollars per acre more than tobacco not topped or suckered, and nearly 200 dollars per acre more than hand-suckered tobacco.

Generally, the per acre yield of cured leaf increased as rate of N fertilizer increased. Yields of leaf respectively were 2571, 2738, and 2756 pounds per acre for the 100, 200, and 400 pounds per acre N fertilizer rates (Table 2). However, there was no significant yield advantage from applying N at the 400 lb rate over the 200 lb rate.

Table 2. — Effect of nitrogen level and harvest date on value of Burley 21 leaf

Nitrogen level	Harvest time	Yield, lb/acre	Value, Dollars/cwt	Value, Dollars/acre
100	early	2522	64.88	1639
	late	2620	66.29	1737
	average	2571	65.59	1688
200	early	2759	64.58	1782
	late	2717	65.56	1777
	average	2738	65.07	1799
400	early	2809	65.34	1835
	late	2703	59.99	1620
	average	2756	62.66	1728

At the 100-pound N rate both dollars per 100 pounds and dollars per acre tended to be higher at late harvest than at early harvest, whereas the reverse was true for the 400-pound N rate (Table 2). When N was applied at the rate of 200 pounds per acre, harvest date had no effect on value. The decrease in value per acre between early and late harvests for the 400 N treatment resulted primarily from a decrease in value per 100 pounds. Nearly 2½ inches of rain fell between early and late harvest for the 400 N treatments, causing green tobacco and lowered quality after curing. Applying excessive amounts of N fertilizer delays maturity and consequently, increases greatly the chances of the tobacco encountering unfavorable weather—e.g., rain, wind, hail, or frost near harvest time. Additionally, excessive amounts of N may increase soil acidity and cause toxicity problems with manganese and other minor elements.