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Bill Maksymowicz  
*University of Kentucky*

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# Agronomy *notes*

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## SUCKER CONTROL PERFORMANCE IN DARK TOBACCO

Bill Maksymowicz

Poor sucker control adversely affects tobacco yield and quality. Suckers serve as a "sink" for nutrients and dry matter that otherwise would go to the expanding leaves intended for harvest, resulting in lower yields. Hand removal of large suckers can cause leaf damage, and failure to remove suckers may result in spoilage during the curing process, resulting in lowered quality. Use of chemical sucker control measures used in burley production can produce lower yields or undesirable cured leaf color of dark tobacco. These studies were conducted to compare the effects of recommended sucker control practices for dark tobacco with systems being adopted in the dark tobacco production area.

### Methodology

Experiments were conducted at the University of Kentucky Research and Education Center (Princeton) from 1989 to 1991 to compare the effects of different sucker control practices on dark tobacco yield and quality. One-row,

10 plant plots with three replications per treatment were used. Plants were topped at mid-button, and all treatments except maleic hydrazide were applied as stalk rundown using 20ml (.67 ounces) of finished spray solution per plant. Hand-suckered plants were suckered three times at weekly intervals after topping. Ten plants per plot were harvested 5-6 weeks after topping and fire-cured. Eleven treatments and timing combinations were tested as follows:

(1) Topped/not suckered-plants not suckered until harvest.

(2) Hand Suckered-suckers removed, counted, and weighed three times at weekly intervals after topping.

(3) Contact/2X-5 % fatty alcohol solution applied at topping and 7 days later.

(4) Contact/3X-5% fatty alcohol solution applied at topping, 7, and 14 days later.

(5) MH .75#-maleic hydrazide, .75 pound/acre, applied as a coarse mist to the upper 1/3 of the plant at topping.

(6) MH 1.5#-maleic hydrazide, 1.5 pound/acre, applied as a coarse mist to the upper 1/3 of the plant at topping.

(7) Contact/MH-tank mixture of a 5% fatty alcohol and .75 pound per acre rate of maleic hydrazide, stalk rundown at topping.

(8) Prime+ 2%-2% solution Prime+, stalk rundown at topping.

(9) Prime+ 1% + 0.25 % X-77-Tank mixture of Prime+ and surfactant, stalk rundown at topping.

(10) Prime+ 1% + Contact 4 %-tank mixture of Prime+ (1 %) and fatty alcohol (4%), stalk rundown at topping.

(11) Prime+ 1% + MH .75#-tank mixture of Prime + (1 %) and maleic hydrazide (.75 pounds per acre), stalk rundown at topping.

The contact (fatty alcohol) treatment is a contact material only, and will not kill suckers that have not emerged. Tobacco plants usually have at least three buds per leaf axil, so at least 3 applications of a fatty alcohol are necessary for full season sucker control. Prime+ is a local systemic: at the proper concentration

it will kill all suckers in a leaf axil, but the spray solution must contact each leaf axil for control. Maleic hydrazide is a true systemic material. It moves from the leaves to the leaf axil area and kills or retards sucker growth. Depending on weather conditions and fertility, no type of material will control suckers over 1-2 inches long.

## Results

The efficacy of treatments on sucker control is shown as Table 1. Prime+ at 2% (recommended label rate) consistently provided the best sucker control. Multiple applications of a contact material gave good sucker control, but this treatment has generally not gained wide acceptance by producers because of application costs and the probability that wet weather will interfere with timely application.

Table 2 shows the effect of sucker control on yield. Yield differences between topped, not suckered (0% sucker control), and Prime+, 2% (99% sucker control), ranged from 735 to 1173 pounds per acre. There was a minor trend towards depressed yield in the maleic hydrazide treatments compared to contact or local systemic materials in 1990 and 1991. If dark tobacco is bud-topped, as recommended, there will often be leaves shorter than 8 inches left in the

top of the plant. Maleic hydrazide applied to this size leaf often will retard expansion, may reduce yield,

fatty alcohol at topping followed by maleic hydrazide is preferred if MH is to be used in dark tobacco (data not shown). The combination of Prime+ (1%) plus a contact material or Prime+ (1%) plus a surfactant gave acceptable sucker control. Since neither Prime+ nor contact materials are not translocated throughout the plant the key to good control with these materials is contacting each leaf axil with spray solution. If tobacco is crooked or has a large ruffle at the petiole finished spray solution may not be deposited in each leaf axil. Care must be taken to ensure spray contact with all leaf axils when using this type of sucker control program to ensure acceptable sucker control.

By topping at the correct time and using available materials according to label instructions, higher yield and quality is easy to gain. When selecting a sucker control program, the dollar cost for chemical should be the last consideration-focus should be on net returns.

**Table 1. Percent Sucker Control**

Treatment	Sucker Control		
	1989	1990	1991
	%		
Topped, not suckered	--	--	--
Hand Suckered	72	69	32
Contact/2X	84	79	57
Contact/3X	97	97	79
MH .75#	84	86	92
MH 1.5#	90	95	94
Contact/MH	97	93	94
Prime+ 2%	99	99	99
Prime+ 1% + X-77 0.25%	95	95	97
Prime+ 1% + Contact 4%	99	99	99
Prime+ 1% + MH .75#	99	98	92
LSD (.05)	4	6	7

**Table 2. Yield Response to Sucker Control Treatments**

Treatment	Total Yield		
	1989	1990	1991
	lb/A		
Topped, not suckered	1221	1140	1224
Hand Suckered	1554	1620	2046
Contact/2X	2021	1730	2167
Contact/3X	2117	2020	2230
MH .75#	1910	1980	2146
MH 1.5#	1895	1940	2066
Contact/MH	1977	2065	2140
Prime+ 2%	1956	2160	2397
Prime+ 1% + X-77 0.25%	1930	1952	2410
Prime+ 1% + Contact 4%	2087	2115	2260
Prime+ 1% + MH .75#	1960	1927	2119
LSD (.05)	315	297	189

and can cause an off-color in the cured leaf. A split application of a

Bill Maksymowicz