I. 2010 PRODUCTION PRACTICE SURVEY OVERVIEW

The Center for Tobacco Grower Research (CTGR) conducted a tobacco production practice survey with growers of burley, flue-cured and dark tobacco in tobacco growing states. The purpose of the survey was to collect information about tobacco production practices. A total of 735 tobacco growers responded to the survey. Four hundred and eight-five burley growers responded for a response rate of 47%, 148 flue-cured growers responded for a response rate of 43%, and 102 dark growers responded for a response rate of 48%. The survey covered several topics such as production, labor, machinery and equipment, land, fertilizer and chemicals as well as other items such as crop insurance and operating loans.

Production

Comparing the average number of acres grown in 2010 to that in 2009, burley and dark tobacco crops did not exhibit change while flue-cured has witnessed some increase. However, the 2010 yield performance of all the three tobacco types was consistently lower than that of 2009.This may be attributed to unfavorable weather conditions. There was no variation in yield stability across the three types between the two years. All farms were consistently affected. In terms of price, dark-fired tobacco received the highest average price ($2.48 per lb.) in 2009 followed by dark air ($2.22 per lb) and flue-cured ($1.77 per lb). Burley tobacco received the lowest price ($1.72 per lb).

The survey results revealed some differences among the three tobacco types in marketing and production practices. One of the differences in marketing practices was the number of marketed stalk positions or grades. Over 60 percent of burley and dark tobacco growers reported that they marketed three grades. In contrast, 58 percent percent of flue-cured tobacco growers marketed in four grades.

With respect to production practices, one of the differences among the three tobacco types was the source of plants. While the vast majority of dark tobacco growers (73%) purchased all their dark tobacco plants only 36% of flue-cured growers did the same. In contrast, 47 percent of flue-cured growers raised their own plants while only 24 percent of dark growers did the same. Burley growers were practically split down the middle with 46% of purchasing all of their 2010 plants and 45% producing all of their 2010 plants.

The three tobacco types were also different in terms of the planting density per acre. Burley had the highest density followed by flue-cured and dark tobacco. They were, however, similar in terms of the fact that almost all of them did not use no-till or strip-till practice and also the majority of them had their soil tested before planting.

Labor

Growers of all the three tobacco types reported that family, non-family and H-2A workers were employed in the production of their respective tobacco crops. Nearly an equal number of family (4-5) members were employed across all the three tobacco farms.

In terms of the number of H-2A workers, flue-cured tobacco growers followed by dark tobacco growers were the most prevalent users of H-2A labor. Sixty-nine percent of flue-cured growers and 64 percent of dark tobacco growers reported using H-2A labor, while only 21 percent of burley growers reported the same. Dark tobacco growers who used H-2A labor hired the most in terms of numbers followed by flue-cured farms. In contrast, burley growers who used H-2A labor hired the least number of H-2A workers. In 2010, those dark tobacco growers who participated in the H-2A program hired a total of 17 of whom 10 were full-time and 7 were part-time. Similarly, flue-cured growers hired a total of 15 H-2A workers of whom 9 were full-time and 6 were part-time. Of those burley growers participating in the H-2A program, only 12 H-2A workers of whom 7 were full-time.

The total number of workers, including both hired and family was higher on flue-cured farms (30) and dark tobacco farms (30) than on burley tobacco farms (27). There was small difference in the number of workers employed between the pre-harvest, and harvest and post-harvest operations.

In regards to the total number of labor hours, dark tobacco growers used the most labor hours per acre (184 hours per ace) followed burley growers who used 165 hours/ acre. Flue-cured growers used the least amount of labor hours per acre of production (112 hours per acre) - this includes those that mechanically harvest and those that hand harvest.

When we look at labor hours per category and split out those that mechanically harvested and those who did not in flue-cured, we see that the largest difference in labor per acre amongst types is in market prep or post harvest. This is due to flue-cured tobacco being removed from the stalk in grades during harvest while market prep for burley and dark tobacco involves stripping, grading, and baling the tobacco. See Table 1.

Furthermore, as seen in Table 1, is the efficiency of mechanically harvesting over hand harvesting in flue-cured as well as in burley and dark tobaccos. This is not only due to the mechanical harvester but also due to the advances in and the adoption of bulk barns, box loaders, and conveyor belts used in housing. The difference in pre-harvest labor for flue-cured might be due to the fact that those that mechanically harvest also are more likely to mechanically top and apply sucker control where as those that hand harvest may do both of those by hand.

Table 1: Labor Hours on Average per Acre by Labor Category

	Burley	Dark	Flue-cured (mech)	Flue-cured (hand)
Pre-harvest	44	58	44	60
Harvesting and housing	52	65	44	64
Market prep (post-harvest)	73	63	15	15

Machinery and Equipment

The piece of equipment used most commonly across the three tobacco types was the high clearance sprayer (Hi-boy). The majority of growers of all the three tobacco types reported using the Hi-boy in 2010. The majority of burley and dark tobacco growers also reported using a 2-row planter. In contrast, only a little over one-third of flue-cured growers reported using a 2-row planter. Instead, the majority of flue-cured tobacco growers reported using a mechanical harvester, 4-row planter and big balers with scales.

Land

Nearly 80 percent of flue-cured and over 85 percent of burley and dark tobacco growers grow at least some or their entire crop on land they own. However, when the issue of owned versus rented is looked at in terms of acres on the average farm, differences among the types appear. On the average farm, 74 percent of the burley tobacco acres were grown on land that was owned by the grower, 69 percent of dark tobacco acres were grown on owned land, but only 39 percent of flue-cured tobacco acres were grown on owned land. In contrast, on the average flue-cured tobacco farm most of the flue-cured acres (69%) were grown on land that was rented. The average rental land value was the highest for dark tobacco ($448 per acre with barn and $266 without barn) followed by burley tobacco ($251 per acre with barn and $168 per acre without barn). Flue-cured tobacco reported the lowest rental rates with an average of $71 per acre.

With respect to irrigation, nearly 70 percent of flue-cured growers and 54 percent of dark tobacco growers reported that they could use irrigation while just less than 30 percent of burley growers reported the capability to irrigate. Looking at total acres in each of the surveys, only 33 percent of the burley acres had the capability of being irrigated while 44 percent of flue-cured acres and 49 percent of dark acres could be irrigated. The irrigation systems used most commonly by these tobacco growers were a movable pipe with gun or overhead sprinklers and a travelling gun. A good number of dark tobacco growers also use the drip system.

Fertilizer and Chemicals

Tobacco growers use nitrogen (N), phosphors (P_2O_5) and potassium (K_2O) as major soil nutrients. However, there is a large difference in the amount of these nutrients applied per acre. Dark tobacco growers use the highest amount of all the three

fertilizers per acre followed by burley growers. Flue-cured growers use the least amount of all the three fertilizers per acre. About 80 percent of growers of the three types of tobacco purchase the majority of their fertilizers in the spring (March, April and May).

Among the various insecticides available in the market, Orthene was used by the majority of burley growers (60%) in 2010 followed by Admire (50%). Acephate and Dipel were also used by about 20 percent of burley growers. The use of these insecticides was also common among dark and flue-cured tobacco growers. Admire and Orthene were used by the majority of dark tobacco growers (71-73%) followed by Acephate (58%) and DiPel (50%). Similarly, Admire, Acephate and Orthene were used by the majority of flue-cured tobacco growers. In addition, Belt, Dipel and Coragen were also used by a good number of flue-cured growers.

In terms of the frequency of applications, the vast majority of flue-cured and dark tobacco growers had three or more applications during the growing period. In contrast, a relatively larger proportion of burley growers (40%) reported two applications. Application was done both before and after transplanting across the three tobacco types.

As it comes to fungicides, dark tobacco growers tend to be the most common users. The majority of burley and flue-cured growers did not use fungicides. In contrast, just over one-half of dark tobacco growers (53%) reported using Ridomil Gold/Ultra Flourish. Another fungicide known as Quadris was also used by more than 40 percent of dark tobacco growers. Number of applications during the growing period was as high as two.

The fungicides reported to be used by a good number of burley growers (20-30%) were Ridomil Gold/Ultra Flourish and Terramaster. About 16% of burley growers also reported using Quadris. These three chemicals are also used by flue-cured tobacco growers. Quadris came first followed by Ridomil Gold/Ultra Flourish and then Terramaster. Compared to burley tobacco, a relatively larger proportion of flue-cured growers used these chemicals.

With regard to sucker control chemicals, DNAs (such as Butralin, Prime+, Drexalin) was used by the majority of flue-cured and dark growers but only 41% of burley growers. The use of fatty alcohol (such as Sucker Plucker, Off-shoot T, Fair 85) is more common among flue-cured (79%) and dark tobacco (71%) growers than among burley growers (11%) and the use of MH (such as Royal MH-30, Fair Plus) is more common among burley (84%) and flue-cured (71%) tobacco growers than among dark tobacco growers (43%). The number of applications varied with the type of tobacco. The majority of burley growers (88%) applied once, 55% of dark tobacco growers applied twice and 65% of flue-cured growers applied three or more times during the growing period.

Among herbicides, Spartan, Command and Prowl were the most used. The majority of flue-cured growers used Spartan and Command. Prowl was used by over 30 percent of flue-cured growers. Similarly, the majority of dark tobacco growers used Spartan. Command and prowl were used by about 40 percent of dark tobacco growers. In the case of burley, Prowl was used by a near majority of growers (47%). About 30 percent of burley growers also used Spartan. Across the three tobacco types, the majority of growers normally applied herbicides before transplanting.

Nematicides/fumigants were rarely used in burley and dark tobacco farms. However, about one-third of flue-cured growers reported using Telone C-17 which they applied only once.

Other items

Among flue-cured growers 90 percent had crop insurance in 2010. This percentage decreased with dark and even more so with burley with 63 percent of dark tobacco growers and just over 50 percent of burley growers having crop insurance in 2010. Similarly, flue-cured growers were the most common users of operating loans while burley growers were the least common users of operating loans. Sixty-seven percent of flue-cured growers had operating loans in 2010. In contrast, just 50 percent of dark tobacco growers and 36 percent of burley growers had operating loans during the same year.

While some dark tobacco and flue-cured tobacco growers also grew burley, only very few burley growers also grew flue-cured or dark tobacco.

Curing is a costly operation for flue-cured and dark-fired tobacco growers because of the high costs of electricity and propane for the former, and the cost of saw dust and slabs for the latter.

Given an average yield of 2382 lbs per acre in 2010 and the average cost of electricity for curing flue-cured tobacco produced is $134 per acre, the estimated cost of electricity per pound of flue-cured tobacco in 2010 was $0.06.

In dark-fired tobacco, with an average yield of 3094 lbs per acre and the average cost of sawdust and slabs for firing dark-fired tobacco is $558 per acre, the estimated cost of sawdust and slabs per pound of dark-fired tobacco in 2010 was $0.18 of which $0.12 was spent for sawdust and $0.06 for slabs. It was reported that dark-fired tobacco growers use an average of four firings to cure a barn of tobacco.