

# Selecting Burley Tobacco Varieties for 2008

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Variety selection is important to minimize disease incidence and severity and to suit the growth characteristics desired by individual producers. With contracting the norm for marketing tobacco, needs of the contracting companies must be considered. Most companies may want tobacco produced from screened seeds only. Others may require that the variety carry the LC logo designating that the tobacco came from seed screened to a specific standard. This seed screening process is intended to help reduce the possible accumulation of tobacco-specific nitrosamines (TSNA) during curing and storage of cured tobacco. The level of screening in private varieties listed below could not be determined at the time this publication was written.

Black shank incidence throughout the burley growing regions makes variety selection for resistance extremely important and the degree of resistance can be an issue in areas where black shank pressure is high. The specific resistance offered by a variety may make a difference in areas where race 0 or race 1 may be high. In many cases, chemicals containing mefenoxam (Ridomil Gold or Ultra Flourish) may be necessary to achieve the best results under heavy black shank pressure (See Chemicals for Disease Management section for best use guidelines). In addition to disease resistance, characteristics like handling, stalk diameter, drought and excess moisture tolerance, growth habits and, of course, yield and quality are important traits to look for in a variety.

The number of varieties with high resistance to black root rot makes variety selection for this disease easy. As the amount of legume forages, like alfalfa, has increased, rotation to fields with such a history is common. Selection of root rot resistant varieties reduces the risk of developing this disease when rotating to a high-risk area.

Many new high yielding varieties are available to producers. However, some may be difficult to handle if not managed properly. Some producers may want to rethink their choices for 2008 and consider drought tolerance as part of the selection process along with handling characteristics as major factors to consider when selecting a variety. However, producers must consider that weather patterns change from year to year. Therefore, selection should be based on disease incidence with other characteristics considered secondary. For example, HB 04P is the most drought tolerant variety available, but it is not a choice many can use due to lack of black shank resistance.

## Variety Descriptions

**TN 90 LC** is still a popular burley tobacco variety accounting for a significant number of acres in Kentucky and the U.S. in general. Released in 1990, TN 90 LC offers a broad range of important characteristics. Originally thought of as a substitute for TN 86 LC, TN 90 LC became a popular variety due to tolerance or partial resistance to blue mold, small stalk diameter, upright growth characteristics (ease of handling) and good cured leaf color. Although not as high yielding as some other varieties including TN 86 LC, TN 90 LC can produce a respectable yield with the potential to reach 3200 lb/A. New varieties like KT 204 LC and KT 206 LC threaten to take much of the current

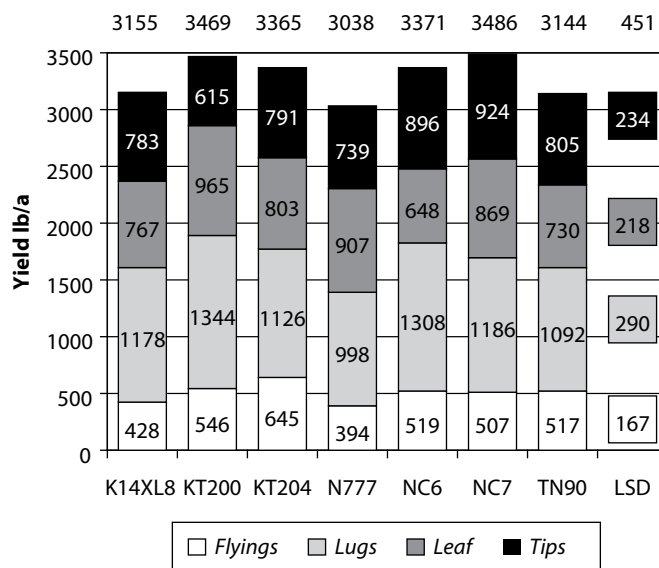
TN 90 LC acreage due to improvements in disease resistance and yield.

Like TN 86 LC, TN 90 LC yields vary more than most varieties from location to location. In addition to blue mold tolerance, it has level 4 resistance to both races of black shank and high root rot resistance. Its lack of Fusarium wilt resistance has caused some concern, but that is not an issue for many producers.

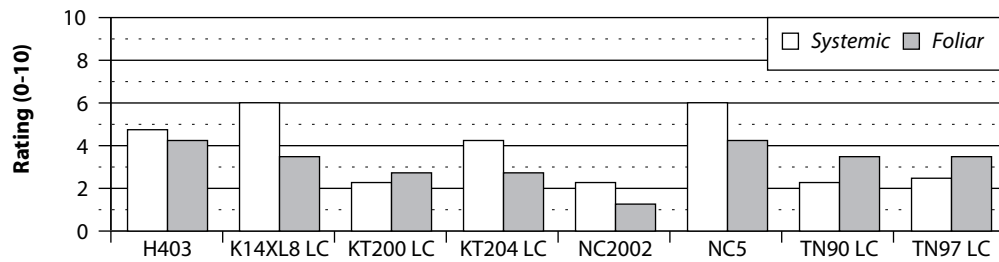
**TN 86 LC** still has a loyal following, but quality issues prompted many producers to switch away from this variety. TN 86 LC has a tendency to germinate slow, grow slow early in the season and cure slow, leaving undesirable variegated patterns on the cured leaf. It is higher yielding than TN 90 LC reaching 3300 lb/A under ideal conditions and may perform slightly better than TN 90 LC under the same level of black shank pressure. It is an upright variety to the point that row coverage may not be complete at harvest. TN 86 LC should be avoided in all but the best curing barns. Varieties like KT 204 LC and KT 206 LC are superior to TN 86 LC in many areas.

**KT 206 LC** is the newest variety released jointly by the University of Kentucky and the University of Tennessee and once again offers some improvement over KT 204 LC. KT 206 LC has a good disease package and the best black shank resistance currently available. It has a 10 level to race 0 of the black shank pathogen, indicating no black shank symptoms expected in fields with only race 0, and a 7 level to race 1. With most counties now reporting the presence of race 1 in combination with race 0, KT 206 LC is expected to provide good black shank tolerance. In areas with heavy race 1 black shank pressure, products containing mefenoxam (Ridomil Gold or Ultra Flourish) are still recommended for KT 206 LC. (See Chemicals for Disease Management section). KT 206 LC performed extremely well during the drought of 2007. It is expected to have a potential yield of 3400-3500 lb/A. Average yields should reach 2800-2900 lb/A.

Figure 1. Burley tobacco variety trial, Woodford Co.—Rusty Thompson Farm.



**Figure 2.** Systemic and foliar blue mold incidence—Menifee County.



**KT 204 LC** offers some improvements over that of **KT 200 LC**, but may not perform as well as **KT 206 LC**. While it still has the great disease package offered by **KT 200 LC**, it may actually fare better under heavy black shank pressure (both races). It is not as late maturing as **KT 200 LC**, a common complaint from farmers who grow **KT 200 LC**. It does not have as large of a stalk as **KT 200 LC**, which should improve handling. It is not as tolerant to blue mold as **KT 200 LC** or **TN 90 LC**, but not as susceptible as Hybrid 403. Quality is expected to be better than that of **KT 200 LC** with yields that can reach 3400–3500 lb/A under ideal conditions. **KT 204 LC** tends to grow slow early in the season which may discourage producers initially, but its growth in the later part of the season is impressive. **KT 204 LC** reverts to normal growth during the later part of the season due to the development of a good root system even though top growth may be slowed initially. **KT 204 LC** does not tolerate drought and black shank resistance may not hold up well during dry seasons. Target spot incidence has been high for **KT 204 LC**. However, the extent of the susceptibility is not known at this time.

**KT 200 LC** continues to have a loyal following, but may lose out to **KT 204 LC** and **KT 206 LC** in many cases. It has a similar disease resistance package to **TN 90**, but should tolerate black shank pressure much better **TN 90 LC**, but less so than either **KT 204 LC** or **KT 206 LC**. It has level-six resistance to both races of the black shank pathogen. It has tolerance to blue mold similar to that of **TN 90 LC**. Yields have been excellent and can reach close to 3400-3500 lb/. Some producers like **KT 200 LC**, but others were disillusioned with its large stalk and plant size and its late maturity and quality issues. It has a high green stalk weight which may discourage growers. Many who tried **KT 200 LC** for the first time in 2004 or 2006 were disillusioned with the size of the variety which was enhanced by high rainfall late in the season. Its late maturing nature was not a problem in 2006 due to labor shortages that forced late harvest anyway. **KT 200 LC** has a dark green color while growing in the field and may have more of a tendency to cure green if not allowed to mature prior to harvest. Growers should top this variety early and let it stand 4-5 weeks before harvest to minimize a potential green cure.

**KY 14 x L8 LC** is dropping in popularity due to increased incidence of race 1 black shank and the extra management required to produce high yields and good quality. It is an early maturing, short, spreading type of tobacco. Leaves droop to the extent that leaf breakage can be excessive under certain conditions. In addition, leaves appear to be more brittle than most varieties making **KY 14 x L8 LC** a poor choice for mechanical harvest or for farmers using laborers that may not take precautions during harvest. It has fewer leaves than most varieties, but compensates by producing larger leaves. Stalk diameter is small to medium.

Yields average over 3000 lb per acre and may reach 3300 lb/A under ideal conditions. Quality can be excellent under proper management. Delayed topping increases sucker development and may make control more difficult. **KY 14 x L8 LC** initiates sucker growth sooner than most other varieties making early topping a must. Best results are achieved when 14 x L8 LC is harvested at three to four weeks after topping. Delayed harvest may increase sucker control problems and reduce cured leaf quality. **KY 14 x L8 LC** has high resistance to race 0 of the black shank pathogen, but no resistance to race 1. The presence of race 1 many areas has forced producers to abandon **KY 14 x L8 LC** in favor of varieties with resistance to both races. Damage by the virus complex can be severe where virus pressure is high and blue mold incidence may be higher for than in most varieties. **KY 14 x L8 LC** may yield poorly if planted in an area with high root rot pressure. Many tobacco growers are realizing that **KY 14 x L8 LC** no longer serves their needs as it once did. Hopefully most growers will realize this fact prior to suffering major losses from race 1 black shank. **KY 14 x L8 LC** also has moderate resistance to *Fusarium* wilt.

**HB 04P LC**, a hybrid variety from F.W. Rickard Seed, has excellent drought tolerance as demonstrated by its performance in 2002, 2005, 2006, and especially 2007, but also performed well under wet conditions in 2003 and 2004. **HB 04P LC** is resistant to black root-rot and mosaic, but has no resistance to black shank. It has medium maturity and is similar to **NC BH129 LC** for its resistance to the virus complex. It has large leaves and an average-sized stalk diameter. **HB 04P LC** has a yield potential of approximately 3300-3400 lb/A. Cured leaf quality is generally good. With a yield close to that of **KT 200 LC** or Hybrid 403 LC, it may be a better choice for those who do not like the late maturity of **KT 200 LC** or need the black shank resistance that **KT 200 LC** offers. It also offers more rotational choices than Hybrid 403 LC due to its root rot resistance. This variety is also well suited for hill top, non-irrigated crops that may be prone to drought.

**Hybrid 403 LC** remains one of the top yielding burley tobacco varieties after several years on the market. Producers who wish to grow Hybrid 403 LC, which has no resistance to black shank or black root rot, need to avoid fields with a history of black shank and rotations that might favor root rot development including continual tobacco production or any legume crop such as alfalfa, clovers or soybeans. A darker green variety in the field, Hybrid 403 LC has a higher incidence of blue mold than most varieties when conditions favor this disease. Producers tend to like how this variety handles, especially at housing time. The ratio of cured leaf yield to green weight at harvest tends to be higher than in most other varieties. It has a yield potential in the absence of disease pressure of approximately 3500 lb/A. Some

newer varieties with higher yield potentials and better disease packages are challenging the popularity of Hybrid 403 LC.

**NC BH129 LC** has been one of the most consistent yielding varieties regardless of weather or soil conditions. With a 3200 lb/A yield potential, this variety has performed well for many producers. It has high resistance to black root rot, but low black shank resistance. NC BH129 LC is a tall variety with more space between leaves than most other varieties. It produces very high cured leaf quality with the exception of color, which tends to be bright. Early topping significantly improves color in this variety. Its medium to early maturity makes it a good choice when coupled with a late maturing variety for scheduling labor. Lack of adequate black shank resistance limits the use of this variety.

**R 630 LC** is an early maturing variety with a yield potential around 3000 lb/A. While unable to yield with some of the newer varieties, it still has a good yield potential. Even though it has the same level 4 rating for both races of black shank as R 610 LC, some trials indicate that it may fair better in black shank fields. R 630 LC's drought tolerance may be part of the reason why. R 610 LC can develop significant stress during a drought with the potential for heavy leaf loss or burn. While R 630 LC shares a similar name, maturity, and yield potential to that of R 610 LC, the similarities end there. It has high resistance to black root rot, a disease that often afflicts R 610 LC. Viruses have caused serious losses in R 610 LC in some areas, but R 630 LC has resistance to the virus complex. While R 630 LC leaf quality may not be quite as good as that of R 610 LC, no other variety can make that claim either.

**R7-12 LC** is a late maturing variety with a high yield potential that may reach past the 3400 lb/A mark. Although it has no black shank resistance, it does have high black root rot resistance, which will make it suitable for more locations than Hybrid 403 LC. It has wide upright leaves, medium stalk diameter, and a good cured leaf color and quality.

**N 126** is a medium maturity variety with a yield potential of 3200 lb/A. It has very little disease resistance and yields would suffer if it is grown where disease pressure is high. Avoid fields with a history of root rot or black shank when growing this variety. N 126's other strong point besides yield is its dark cured leaf color, which makes it stand out at the market. N 126 has a relatively small stalk diameter making handling potentially easier than big stalk varieties.

**N 7371 LC** is a new variety released by Newton Seeds Inc. Early indications are that resistance to black shank early may be fair, but preliminary tests indicate that the resistance does not hold up later in the season. However, results may vary depending on the predominant black shank race. N 7371 LC is a late maturing variety with a high number of long but narrow leaves and is a high yielding, good quality variety. Topping may be slower than comparable varieties due to the smaller upright leaves in the top of the plant at topping time.

**TN 97 LC** is a medium to late, high yielding variety with a yield potential that can reach 3400 lb/A. Its potential as a black shank resistant variety has not lived up to expectations. It does have black root rot resistance and resistance to the virus complex. It appears to be more susceptible to drought than many other varieties making it more suitable where irrigation is possible. Its susceptibility to drought may decrease its perceived resistance

to black shank. A variety like TN 97 LC handles the excess moisture of a year like 2003 better than most other varieties.

**NC 2000** is a late maturing, blue mold resistant variety. It has very little resistance to other major diseases like black shank or black root rot. It has one of the lowest yield potentials of all of the varieties currently available at approximately 2600 lb/A. Its usefulness is limited to those producers whose tobacco suffers a high degree of damage from blue mold annually, but is not exposed to black shank.

**NC 2002** is a blue mold resistant variety. It has very little resistance to other major diseases like black shank or black root rot. It is a higher yielding variety than NC 2000 with a yield potential of approximately 3000 lb/A under ideal conditions and no disease pressure.

**NC 3**, a medium, late maturing variety, may surpass the yield of NC BH129 LC by 100 lb/A, but disease resistance is similar. It does have virus resistance, although NC BH129 LC should show some tolerance also. NC 3 is also a consistent variety and may produce a better color at curing than NC BH129 LC.

**NC 5** is a variety with good potential for control of black shank. It has very high resistance to race 0 black shank like that of 14 x L8, but also has a medium level of resistance to race 1, which 14 x L8 does not have. It has high resistance to black root rot and the virus complex, but does not have Fusarium wilt resistance. It is medium to late in maturity. Yields may reach 3200 lb/A under ideal conditions, but its yields cannot compete with higher yielding varieties.

**NC 6** is a medium-late maturity with high yield potential and good leaf quality. Yields are expected to reach 3400–3500 lb/A under ideal growing conditions. NC 6 is a big robust variety with a large stalk size. Plant size can be big at harvest and handling may be difficult if plant population drops below 7500 plants per acre, 42" x 20" plant spacing. It has high resistance to race 0 black shank, but low-to-medium resistance to race 1 black shank. It also has resistance to black root rot and the virus complex. In addition, it has resistance to Southern root knot nematode, but is susceptible to Fusarium wilt.

**NC 7** has high resistance to race 0 black shank, and low-to-medium resistance to race 1. Otherwise, NC 7 has a good disease resistance package including resistance to black root rot, Fusarium wilt, tobacco mosaic virus, and wildfire. It has a big, robust growth habit with a large stalk diameter. Handling may be difficult under conditions that increase plant size (plant populations under 7500 plants per acre). It has some unique resistance that may not be significant in Kentucky, including resistance to root knot nematode and tobacco cyst nematode. Yields are expected to reach 3500 lb/A under ideal conditions and quality is expected to be good. Avoid areas where race 1 incidence is high. NC 7 may be the best current solution where Fusarium wilt incidence is high. However, if race 1 black shank pressure is expected to be high (common in many fields around Kentucky), chemicals containing mefenoxam (Ridomil Gold or Ultra Flourish) may need to be applied up to three times to achieve best results.

These and other varieties could help to improve disease control and improve yield and quality. Other varieties not listed here may produce equal results, if selections meet disease resistance and management needs. Look for 2007 yield results as they become available at [www.uky.edu/ag/tobacco/](http://www.uky.edu/ag/tobacco/).