

2015 Annual Report & Research Summary



K E N T U C K Y

Small Grain

G R O W E R S ' A S S O C I A T I O N





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Kentucky Small Grain Promotion Council Annual Report

From June 1, 2014 to May 31, 2015

Reviewed by Jones, Nale & Mattingly, PLC

REVENUE

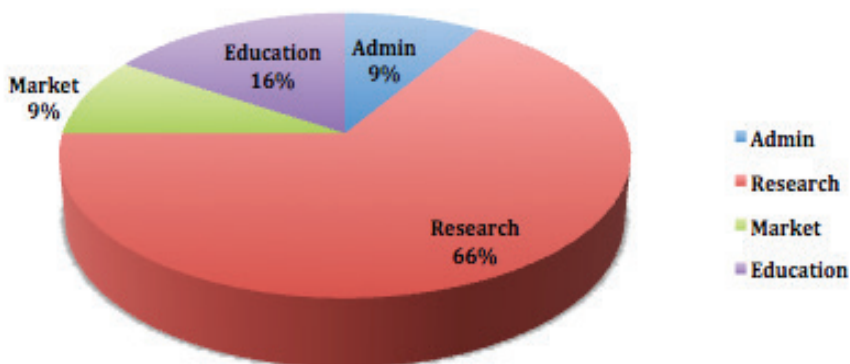
Checkoff Assessments \$461,175
Producer Refunds and Reimbursements \$25,989
Net Checkoff Income \$435,186
Interest Income \$1,059

Total Revenue \$436,245

EXPENSES

Program Services:
Market Development and Promotion \$27,182
Research \$195,416
Education \$46,549
Administration \$25,550

Total Expenses \$294,697



Kentucky Small Grains Welcomes New Communications Director

Kentucky Small Grains is pleased to announce its newest team member, Kirstie Darnall, who was hired as communications director on October 5.

Kirstie is from Princeton, KY and graduated from Murray State University in May with a Bachelor of Science in Agriculture Science and Public Relations. While at Murray State, Kirstie served as a Kentucky State FFA Officer, a Public Relations Intern for the Murray Convention & Visitor's Bureau, Vice President of Communications for the Alpha Omicron Pi fraternity, and Event Coordinator for the Murray State University Regional Business & Innovation Center. Kirstie also spent this past summer interning for Omnicom Media Group in New York City where she put her newly minted skills to work gaining valuable experience with the media and communication tools needed for our organization.

"Kirstie has been a great addition to the team, and we have enjoyed working with her," said Laura Knoth, Kentucky Small Grains Executive Director. "Kirstie is committed to agriculture and will help us tell the important story of Kentucky's grain industry."

Trying to Win the Wheat Yield Contest with Nitrogen Doesn't Win

by Chad Lee, Extension Professor, University of Kentucky

Yield contests are an interesting way to identify the maximum yields possible within very small areas of fields. High yields always become the talk of the town, so creating a competition for yields is an excellent avenue to generate discussion on both how the yield was achieved and the economics of the accomplishment. Since high yields and contests pique curiosity, it raises the profile of those commodities, and that raises the amount of information we can attain.

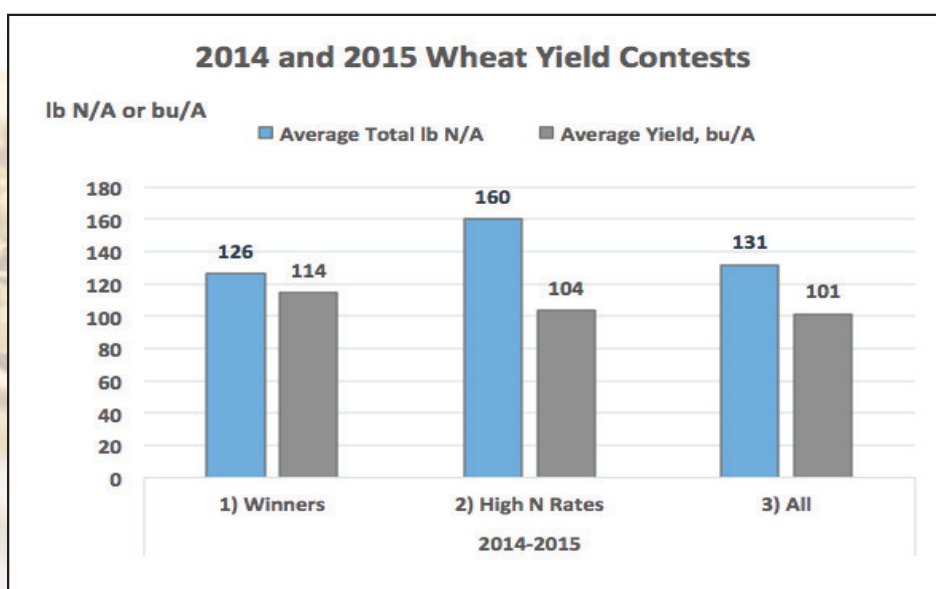
Yield contests can tell us more than what is the best yield in a year. Accurate completion of the agronomic practices portion of the application helps give us a better picture of what farmers are doing to produce the best yields. Since 2008, 50% of the winners have been no-tillage, 93% were in row widths of 7.5 inches or less, 76% applied fall nitrogen, 88% split-applied spring nitrogen, 95% used herbicides, 100% used foliar fungicides and 95% used foliar insecticide. All of these practices can be recommended for intensively managed wheat, and the information from applications helps extension specialists understand where investigative focus needs to be placed to help all farmers. This process quickly makes yield contests a public good for agriculture.

The University of Kentucky has worked with the Kentucky Small Grain Growers to host a wheat yield contest since 1987. Back then, the State Champion was Johnny Dawson with 89.10 bushels per acre. That was an amazing yield, given that the state average was only 50 bushels per acre. In 2015, our State Champion was Keith Hendrickson with 134.27 bushels per acre. This is another phenomenal yield and is the highest ever entered into the contest. The Kentucky state average for 2015 was 75 bushels per acre. These yield improvements illustrate how genetics and management have improved over time.

We are pleased that the National Association of Wheat Growers is going to offer a national wheat yield contest. This will be a chance for Kentucky farmers to showcase their excellent management skills and wheat yields on a national platform. The contest should help bring more awareness to wheat and wheat management. National contests extend the competition and comradery across state lines, creating a broader network of excellent farmers.

Contests can also identify tactics that might not be as obvious with single-farm investigations. Applied N rates in 2014 and 2015 were noticeably higher than previous years. Some of the nitrogen rates were 150 pounds N per acre or more. Yet, applying more nitrogen did not guarantee a high yield. The figure depicts average applied nitrogen and yield for 1) the 12 winners over the past two years, 2) entries with high N rates (N rates at or above 150 lb N/acre), and 3) for all the contest entries. The winners applied less fertilizer N than the high N rate group, but yielded more. The winners applied a little less fertilizer N than the average of all contestants, but still yielded more.

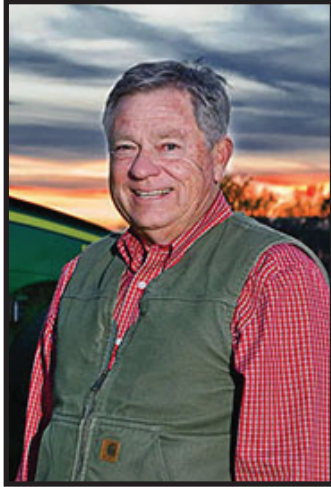
Simply applying a lot of nitrogen was not a guarantee of high yields. Applying a lot of nitrogen can be extremely costly and can have negative environmental implications; this is a great example of a contest revealing what might be conventional wisdom, but maybe doesn't assist in maximizing profitability, or even bushels. Hopefully we have more contestants and entries in the 2016 wheat yield contest and growers will recognize that nitrogen is important to high yields, but it is not the only factor.



2016 Plans for Grains Center of Excellence

by Don Halcomb, KY Small Grains Promotion Council Chairman

As the Commonwealth moves into a new year and we close the books on one of the most productive grain years most have ever seen, it is time to focus on new



opportunities to help farmers face our many challenges. Kentucky Agriculture needs to move support for the proposed Grains Center of Excellence at UK's Princeton Research and Education Center to the top of the political agenda. Heavy farm media focus was placed this year on precision agriculture or the discussion of genetic modification, and these are very important topics. But the events of 2015 proved, once again, that water is the game changer on most Kentucky farms.

Kentucky's land grant research system needs advocates to help it accelerate its focus on water issues. There is little corporate support for water conservation measures like no-till and cover crops, and limited emphasis has been placed on irrigation research. There is limited support, as well, for new crop rotations or new crops that might require less water. While water is not the only research initiative proposed for the new Grains Center, it illustrates the need for independent research into issues not supported by private research. This falls right in line with Kentucky Farm Bureau's Water Management Working Group's efforts and I'm glad to see all of us focusing on vital issues like this one.

Hopefully 2016 will see

major strides in support for taking UK's cornerstone research facility to a level that allows University of Kentucky to continue our position of national leadership in agricultural research. Improving the West Kentucky Research and Extension Center at Princeton will help all of the agriculture research and extension education efforts that take place there. It's a project our future generations of farmers will see benefits from and we should bear the responsibility of helping ensure their sustainability. Take a look at the rendering that UK College of Agriculture, Food and the Environment has developed. As you can see, it will be a great improvement with much needed additional functionality.



GIFTS OF GRAIN

The Kentucky Small Grain Growers Association (KySGGA) has established a research endowment fund at the University of Kentucky (UK) to ensure the advancement of production research crucial to Kentucky's grain farmers.

To date, KY farmers have contributed \$18,000 and KySGGA has matched that amount. Which means the threshold has been established for the fund to begin growing interest. Individual growers and businesses may donate to the fund, and KySGGA will match the sum of donations up to \$50,000. In addition to cash, growers and businesses may make an above the line deductible donation of grain.

Donations should be made directly to the University of Kentucky College of Agriculture for the Kentucky Small Grains Grower's Association Research Endowment. For more information on how to make a gift of grain, contact Marci Hicks at 859.257.7200, or Laura Knoth at 800.326.0906.

PEMBROKE

Certified Seed, No Strings Attached

**SAVE IT.
RESELL IT.
REPRODUCE IT.**



Pembroke Varieties are developed by UK Wheat Science Group and released by KySGGA. Farmers, not KySGGA, profit from the release - royalties go to UK to improve wheat technology. Buyers fully own the technology. One you buy the certified seed, you own it - all of it. No strings attached.



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Pembroke Success and Yield Contests

*by Pat Clements, KySGGA
President*



I am excited to be celebrating this year's crop with a new record yield, 137.42 bushels per acre - Wow! Congrats Keith Hendrickson. We appreciate those who take part in the yield contest from year to year. It is beneficial to be able to learn from what others do and it allows us to continuously grow and get better. We had fantastic results in this year's state yield contest across our wheat belt which tells me more

is possible. We are also excited that the National Association of Wheat Growers has announced a national wheat yield contest. We are confident with our yields; Kentucky can compete with the best. For more information, visit www.wheatfoundation.org.

The KYSGGA Pembroke 2016 release was again a great success, with almost all available supply getting in the ground. We streamlined the sales process by working with the Kentucky Seed Improvement Association which administered the royalty collection this year. Buyers of Pembroke genetics own the technology, meaning once growers have the seed they have the right to produce and save the seed for future use as long as they adhere to all statutes of the Kentucky Seed Law.

We have had yet another successful year, and we are looking forward to next year with excitement and big goals for production and research. If you have ideas about research or programs that needs to be conducted, we'd really like to hear from you. We are always striving for the best ideas and new opportunities to consider.

RESEARCH REPORT

The Kentucky Small Grain Growers Association dedicates the largest portion of its budget to small grain research that may help increase grower success and profitability. The following report lists projects that are complete or continuing. More in-depth results can be found at www.kysmallgrains.org.

Wheat Response to Increased Nitrogen Rates and Plant Growth Regulator

by Carrie Knott, David Van Sanford and Edwin Ritchey, UK

In an attempt to increase wheat grain yield, some producers are increasing nitrogen (N) rates to 160 or 180 lbs N/A and applying a plant growth regulator (PGR) to reduce plant height and lodging. Based upon University of Kentucky recommendations, wheat yield is expected to maximize at 100 lbs N/A in conventionally tilled soils and 120 lbs N/A in no-tilled soils. However, reports from producers on the effect of increasing N on wheat yield are inconsistent.

Replicated field trials were established at Princeton, KY, in 2014 and 2015 and at Lexington, KY, in 2015. The goal of the project was to



Wheat nitrogen rate and plant growth promoter study. Princeton, 2014

gain a better understanding of the effect of increased N rates and PGR on wheat. Five N rates (0, 50, 100, 150, 200 lbs N/A), three varieties (Pioneer Brand 25R32, Pembroke 2014, Truman), and two PGR treatments applied at Feekes 5 (non-treated control, Palisade EC® (12.5 oz/A)) were evaluated. In 2014, all N was applied at Feekes 5 while in 2015 a split N application was used: one-third the total rate was applied at Feekes 3 and the remaining two-thirds was applied at Feekes 5. The three varieties were chosen because of their differences in relative maturity; Pembroke 2014 is early-maturing, Pioneer Brand 25R32 is a mid-maturity variety, and Truman is late-maturing. Stem diameter, plant height, lodging, heads per meter square, number of spikelets per head, grain yield, and test weight were measured.

The PGR reduced wheat height by one inch at Lexington in 2015 and Princeton in 2014. Although

no differences in height were detected at Princeton in 2015, this was the only location where considerable lodging occurred. Pioneer Brand 25R32 had the highest lodging: 37% of the plot was lodged for the non-treated control and 19% for the PGR treatment (Figure 1). It was also the only variety to have less lodging in the PGR treatment than the non-treated control. Lodging for Pembroke 2014 and Truman did not differ between the PGR treatment and non-treated control and was less than 5% for both treatments.

The effect of PGR on wheat grain yield was inconsistent in this trial. When all five N levels were examined, grain yield was 4.9 bu/A less for the PGR treated wheat than the non-treated control at Princeton in 2015 (Figure 2), while grain yield differences were not detected between the PGR treatment and the non-treated control at Princeton in 2014 and Lexington in 2015

(Figure 2). When the three highest N levels (100, 150, 200 lbs N/A) were examined the same results were found.

The only consistent results found in this trial were that the number of spikelets per head increased when PGR was applied and grain yield increased as N rate increased for Pembroke 2014. When all five N rates are included, 13.4 spikelets per head were produced, while only 13.1 spikelets per head were produced for the non-treated control. When the three highest N rates were examined, there were 13.8 spikelets per head for the PGR treatment and only 13.4 spikelets per head for the non-treated control. Although the increase in number of spikelets per head is consistent, there was no measurable increase in grain yield and at this point it is unclear how or why the increased number of spikelets per head is occurring.

Grain yield for Pembroke 2014 (averaged across both PGR treatment and non-treated control) continued to increase as N rate increased; grain yield was 52, 71, 82, 92, and 96 bu/A when 0, 50, 100, 150, and 200 lbs N/A

were applied, respectively. For Pioneer Brand 25R32 and Truman yield was greatest at 100 lbs N/A: 90 and 81 bu/A, respectively. Differences in stem diameter, heads per meter square, or test weight were not found between the PGR treatment and the non-treated control.

Despite claims that a PGR can decrease wheat height in high N environments and that increased N rates result in greater grain yields, inconsistent results were found in this trial. This indicates that the response of PGR on wheat grain yield and plant characteristics is complex. Many variables, including weather, N rate, wheat variety, may affect the response of PGR. To ensure maximum profitability, it is critical that information on the wheat variety's response to increased N and PGR are available before implementing these practices on a large scale.

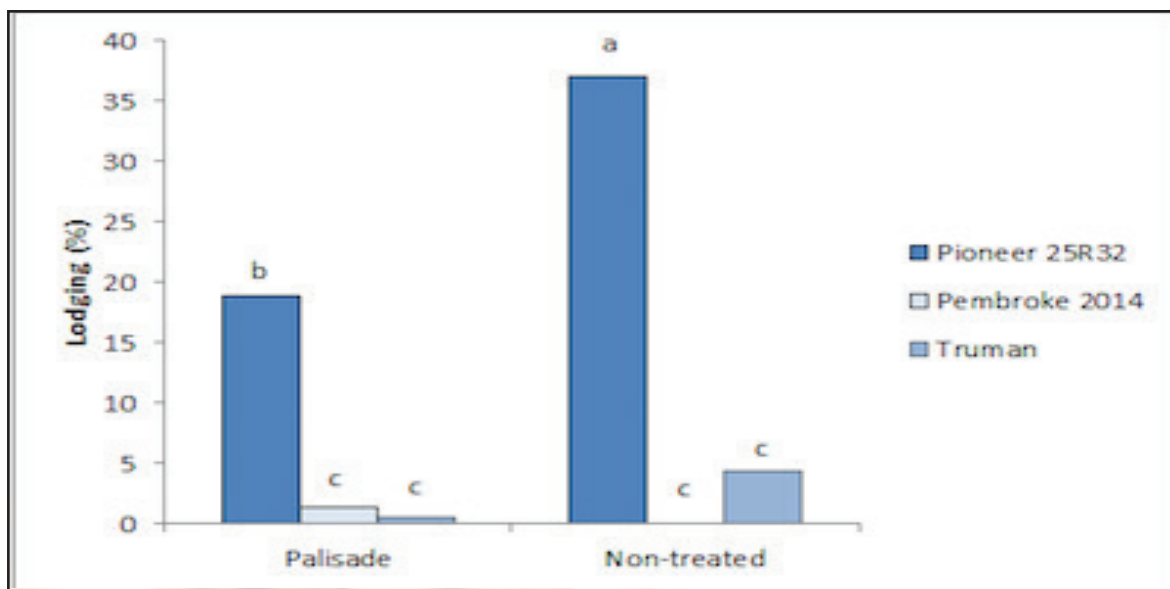


Figure 1

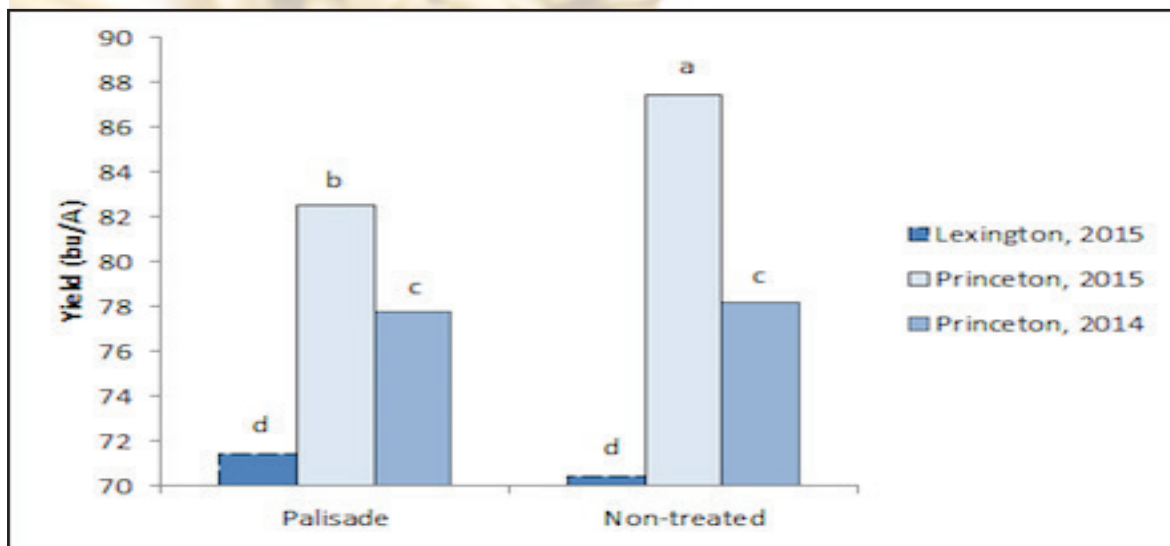


Figure 2

UK Wheat Breeding Project *By David Van Sanford, University of Kentucky*

Variety Release:

The high point of our research in 2015 was the release of Pembroke 2016. This is the third variety released under the Pembroke name and definitely the one with the highest yield potential. It is also short statured and lodging resistant with high test weight and good scab resistance. Farmers are not penalized for saving their own seed of Pembroke 2016, and seed may be sold in compliance with the Kentucky Seed Law.

Yield testing:

In our advanced trials, we selected 99 lines from the 505 lines tested based on yield potential, scab resistance and overall agronomic superiority. These lines will be further tested extensively in 2016 at 4 locations in Kentucky and in collaborative tests in VA, MD, NC, IN, MO, IL, and OH.

Scab screening:

The irrigated, inoculated scab nursery was grown at Lexington in 2015 as it is each year. Pembroke 2016's scab resistance in this nursery can be seen in the DON levels: 5.5 ppm vs the average of 9.5 ppm for long time resistant check variety Truman.

Crossing:

In greenhouse crossing in 2015 we made a total of 477 successful 3-parent crosses in which at least one parent had scab resistance. In the spring crossing cycle, we made 125 successful single cross F1's in which both parents had high yield and test weight with some level of scab resistance.

Field plots and headrows:

We grew 14,060 plots in 2015, and more than 20,000 headrows. Plots were grown at Lexington, Woodford Co., Schochoh, and Princeton; most of our headrows were grown at Princeton. Approximately the same number of plots and close to 30,000 headrows are being planted fall 2015.

Line development:

F4 and F5 headrows were selected at Princeton based on maturity, height, freedom from scab and other diseases, and overall vigor. Seed from these 1220 selected rows is being planted in unreplicated Preliminary Trials in fall of 2015 at Lexington.

Fragipan Remediation Research Project

by Lloyd Murdock, University of Kentucky

The objective of this project is to find a method that will remediate the top of the fragipan in an effective and economical way.

The fragipan is a cemented layer that is about 2 feet below the surface of the soil that stops water movement and root growth. It occurs in about 2.7 million acres of Kentucky soil and reduces crop production by 20 to 25%. If crop production on these soils can be improved by 10% on the 1.5 million acres of croppable fragipan soil, it would result in an increased return of about \$250 million per year. The research approach involves three phases: laboratory greenhouse field

7 that are somewhat effective in breaking apart the pan. Several of these and a few others have been and are being tested in the greenhouse on cores with complete soil profiles. Several are showing promise but are in the early stages of testing.

The one treatment that showed promise early and shows good results in the greenhouse is annual ryegrass. That treatment has been carried to the field phase and is showing promise there. Soybeans were planted after a ryegrass cover crop. The yields of the soybeans grown after 2 years of a ryegrass cover crop yield 25% more (2014) and after 3 years (2015) yielded 4% more. The weather differences probably caused the yield differences. It was dry in 2014 and wet in 2015. This gives us hope that

this will be an effective solution.

A fragipan field in southern Illinois was found, with the help of Mike Plumer, that had a 15 year history of no-till corn grown after a no-till ryegrass cover crop. When compared to the county average corn yields, the corn yields in this field continued to increase over the 15 year period and had about a 30% yield advantage over the county average the last 5 years. This gives additional evidence that this is an effective solution but is somewhat long term.

At this point in the research we are encouraged that we will find a solution and continuing to search for additional shorter term solutions.

Kentucky Small Grain Variety Test Results Include Cereal Rye Evaluation

by Bill Bruening, University of Kentucky

Cereal rye is often planted in Kentucky as a cover crop. Cover crops can reduce soil erosion, suppress weeds, scavenge residual nitrogen and add organic matter to improve soils. Of the winter small grain crops grown in Kentucky, cereal rye is reported to be the most cold tolerant and has the quickest vegetative growth rate. It is primarily grown for grain production in Europe and to a lesser extent in North America. In the U.S., 258,000 acres were planted in 2014 and grain yields averaged 30 bushels per acre. Most U.S. cereal rye grain is produced in South Dakota, Georgia, Nebraska, North Dakota and Minnesota. Cereal rye grain is used for food, to make alcoholic beverages, and for livestock feed. Cereal rye is also used for pasture, cover cropping and for forage/silage production and is typically cut for hay/silage at heading. The standard grain test weight for rye is 56 lbs/bu compared with

where a single application of 60 lbs N is recommended in early March. Excessive N rates can cause lodging and disease issues. Depending on the variety, rye grain can reach harvest maturity a week before or after wheat.

Kentucky Small Grain Variety Performance Test Results are available at <http://www.uky.edu/Ag/wheatvarietytest/>. The UK program evaluated winter cereal rye varieties for differences in grain yield potential, as well as test weight, heading date, plant height, winter hardiness, and lodging.

In the 2015 Kentucky Cereal Rye Trial (Table

TABLE 16. 2015 Kentucky Cereal Rye Variety Test.

VARIETY	Yield (Bu/A)*	Test Wt. (Lb/bu)	Lodging (%)	Height (In)	Heading Date > April 1
KWS Bono**	81.3	56.8	1	48	36
KWS Brasetto**	77.3	56.6	2	51	36
KWS Guttino**	74.1	56.2	1	46	37
Spooner	58.5	58.3	34	59	34
LAX Guardian	57.5	58.2	9	58	36
Aroostook	56.2	56.4	78	60	21
CCWRY1	56.2	56.8	14	60	36
Oklon	55.0	57.1	56	62	23
Maton II	53.3	56.5	73	61	20
Bates RS4	52.0	56.3	61	62	20
Maton	52.0	57.0	69	62	21
Elbon	51.3	56.9	63	62	21
AVERAGE	60.4	56.9	38	58	28

Summary of Caldwell Co. test planted 10-8-14 and harvested 6-23-15 & Woodford Co. test planted 10-8-14 a
*56-lb standard bushel weight; ** Hybrid Cereal Rye

60 lbs/bu for wheat. The plants are tall (4-6 ft), susceptible to lodging (depending on variety & fertility) and produce substantially higher straw yields than other small grain crops.

In Kentucky, cereal rye should be planted between October 10 – October 31 at a rate of 60-90 lbs/acre for grain and 90-120 lbs for forage production. Fungicide seed treatments are an inexpensive and effective method of protecting seeds and seedlings from disease. Insecticide seed treatments will also provide some protection from fall insects, such as aphids which can be an issue with early fall planting in warmer conditions. Management of cereal rye is similar to wheat with the exception of spring N fertilization,

16), common and hybrid rye varieties were evaluated using standard management practices with 70 lbs nitrogen applied at Feekes 4-5. Common varieties on average yielded less (55 vs. 78 bu/a), were taller (61 vs. 48 inches), and had dramatically higher levels of lodging (51 vs. 1%), when compared with hybrids. Among common cereal rye varieties, lodging ranged from 9 – 78% highlighting the importance of other genotypic characteristics besides yield in variety selection.

Improved Chia Production & Product Usage

By Dave Hildebrand, University of Kentucky

Work conducted at the University KY, and by Chris Kummer, has indicated that chia, *Salvia hispanica*, can be an economically viable new crop for KY farmers.

The objectives of this research are to:

1. Develop new lines with improved yield and other agronomic performance characteristics by traditional breeding and further mutagenesis.
2. Expanded NIR & NMR calibrations for rapid, non-destructive analyses of additional chia seed components.
3. The genotype and environmental effects on seed composition analyzed of materials produced in 2014.
4. Post harvest control of germination and microbial contamination.
5. Further market development of nutrigel fiber, $\omega 3$ oil and improved protein product streams from chia.
6. Determination of the molecular genetic basis of long day flowering in chia for more efficient improvement.

Good progress was made toward all 6 objectives.

Crosses have been made, and breeding lines are being tested and selected for improved yield and other agronomic characteristics. The chromosomes have been doubled for some new chia lines, and new mutants have been produced. They are being selected for improved yield, reduced shattering and lodging and larger seeds with higher oil levels. We have found some new mutants with 79% larger seed size.

A collection of chia seeds from around the world were screened for oil and protein levels, as well as fatty acid particularly $\omega 3$ levels. 120 of these lines, covering the ranges of these important quality parameters, were included in development of NMR and NIRS calibrations.

These NMR and NIRS calibrations were installed, validated and can now be used to rapidly evaluate chia seed for oil and protein levels.

The oil and protein levels can be measured from whole seeds with no preparation in 6 seconds by NIRS. Calibrations for fatty acid composition were also developed but more work is needed for high predictive value. Thorough analysis of other seed

quality characteristics was also performed including fiber, phytate and all possible minerals. As expected the chia seeds have a high fiber content generally a little higher than the protein content. The chia seed phytate levels are generally lower than corn or soybeans but still high enough that phytase addition may be beneficial when chia seed meal is used for poultry feed. As expected chia is an excellent source of calcium (Ca) and magnesium (Mg) in addition to phosphorus. It is also a good source of iron (Fe). Undesirable elements such as aluminum (Al), chromium (Cr), arsenic (As), cadmium (Cd) and lead (Pb) are very low, generally below the detection limit. The oil composition of the new chia lines developed for production by KY farmers did not vary very much and were similar to the original parental line from Mexico. The main fatty acid is the $\omega 3$ fatty acid, 18:3, or α -linolenic acid. The mineral levels varied a moderate degree depending on the levels of the minerals in soil. The fatty acid composition did not vary widely. The oil and protein contents also were fairly stable although a moderate increase in protein levels was observed in one replicated experiment along with increased nitrogen fertilization. We were able to eliminate microbial contamination which is important for many food uses with mild heat treatment of chia seeds while maintaining good quality for food uses. Chia seeds produced in Kentucky were also examined for mycotoxins including aflatoxins that can be a problem in many seeds and were found to contain no detectable levels of mycotoxins. We have developed some promising food products with high chia levels and a method for removing the nutrigel fiber off chia seed surfaces for development of 3 product streams from chia, high quality fiber, low fiber protein for feed and foods and high $\omega 3$ oil. We have refined processes for converting chia oil into high quality and value renewable lubricants. The long-day flowering trait was found to be recessive and inherited as a single gene. This also will facilitate the determination of the molecular genetic basis of long day flowering in chia which in turn will greatly facilitate breeding long-day flowering chia for traits of interest to farmers such as yield and seed quality.

Improvement and Development of Barley for Use in Feed, Malt, and Fuel

By Wynse Brooks, Virginia Tech

The proposed research is designed to assess and enhance the yield potential of barley lines for use in multiple end-use markets (Feed, Malt and Fuel). Molecular marker assisted breeding also will be used to transfer desirable traits into the high yielding cultivars Secretariat, Atlantic, Thoroughbred, and Amaze 10 to obtain lines having high yield potential, superior disease resistance, and excellent end use quality. This transformation should enhance the competitiveness of barley compared with wheat and corn and also enhance profitability of barley for producers.

The main activities and accomplishments of the Virginia Tech Barley Breeding Program during the 2014-2015-crop season are as follows. Our primary breeding efforts were focused on development and improvement of yield potential of winter barley cultivars and a major focus on incorporation of value added traits geared towards development of new markets. As a result, one winter barley cultivar (Secretariat) evaluated as VA08B-85 was released in March 2014, and is targeted for production in the mid-Atlantic and southeastern United States as a potential commodity for feed and fuel ethanol. One elite hulled (VA11B-141) barley line is

being considered as potential release candidate. This elite barley line has improved grain yield potential across a broad range of production conditions and have excellent seed qualities. Breeder seed for this advanced line is being multiplied at the Virginia Crop Improvement Foundation seed farm and will be proposed for release in 2016. Agronomic data for Secretariat and other advanced lines can be obtained from the 2015 Virginia Tech Small Grains Variety Trial website (<https://pubs.ext.vt.edu/CSES/CSES-129/CSES-129.html>).

Meanwhile, in the past three years, we have initiated population development and a series of field-testing trials to develop superior winter malt barley cultivars that are widely adapted in the eastern United States. Our strategy is to select and use superior germplasm from the Winter Malt Barley Trial (WMBT) as parents in crosses with elite material from our program. We will develop winter malt barley cultivars that are valuable to local producers and the malting and brewing industries. In the interim, cultivars from the WMBT possessing good agronomic characteristics and malt quality will be identified and evaluated in yield tests in our breeding program. If results are

favorable, malt barley cultivars with superior malt quality, improved grain yield and excellent disease resistance will be recommended for production in the eastern U.S. In the 2014-2015 season one winter malt barley cultivar (Violetta), developed by Limagrain and tested in the Uniform Winter Malt Barley Trial, was recommended for production by our breeding program. This cultivar has performed very well in our trial at Blacksburg and Warsaw, VA. In addition, to accelerate development of superior, widely adapted, high yielding winter malt barley cultivars, our breeding program in collaboration with Oregon State University has initiated development of pure lines using double-haploid techniques. Last spring (2015) around sixty initial double-haploid (DH) lines planted in headrows were evaluated in the field. Forty-eight DH lines possessing good agronomic characteristics were selected and planted in observation plots this fall (2015). These malt barley lines will be evaluated for agronomic characteristics and malt quality in 2016. An additional 460 malt barley DH lines were planted in headrows this fall and will be evaluated next spring.

Kentucky Wheat Yield Contest Winner Sets New State Record

Congratulations to the 2015 winners of UK Kentucky Wheat Production Contest. The top wheat yield in Kentucky, 134.27 bushels per acre, was achieved by Keith Hendrickson in Union County. The top no-till yield was 127.55 bushels per acre submitted by Peterson Farms, of Boyle County.

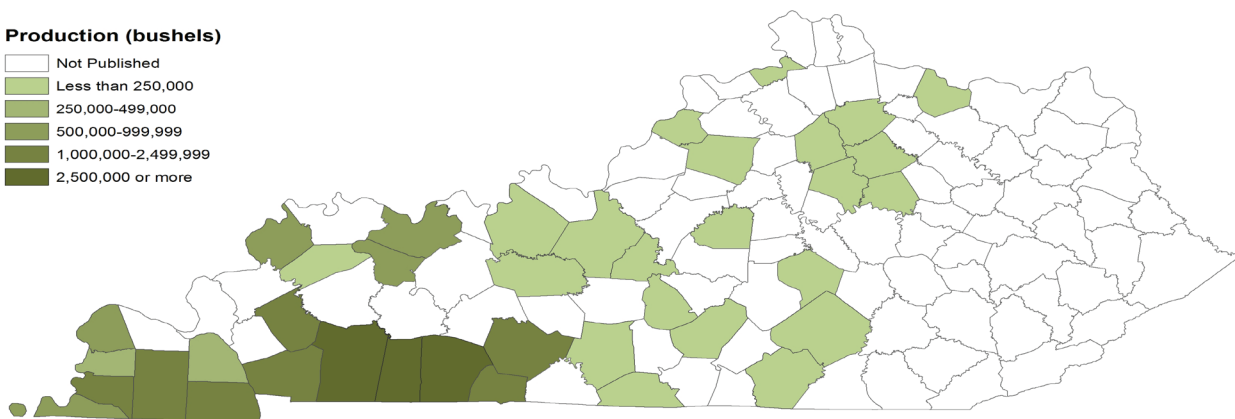
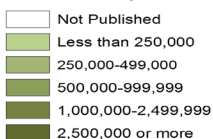
State and Area winners will be recognized at the Kentucky Commodity Conference on January 15, 2016 in Bowling Green, Kentucky.

Full results of the contest entries are below. Additional herbicide, fungicide, and insecticide information can be found at <http://graincrops.ca.uky.edu/files/2015wheatyieldcontest.pdf>.

Winner	County	Area	Division	Variety	Yield	Planting Date	Row Width	Fall N	Fall P205	Fall K20	Winter N	Spring N	Total N
State Awards													
Keith Hendrickson	Union	2	Tillage	Beck's 120	134.27	10/10	7.25				60	70	130
Peterson Farms	Boyle	4	No-Till	AgriMaxx 446	127.55	10/26	7.5	39.1		41.4	56.8	60.9	156.8
Area Awards													
Malcom Oatts	Christian	1	Tillage	Branson	118.64	10/16	Broadcast	18	46	60	50	60	128
Hendrickson Farms	Union	2	Tillage	Beck's 120	113.55	10/15	7.25				60	70	130
Gary Summers	Simpson	3	No-Till	So. States 8340	101.13	10/10	7.5	27	69	60		52	60
Homestead Family Farms	Boyle	4	No-Till	Pioneer 26R10	107.86	11/10	7.5	30	55	72		140	170

Winter Wheat Production, Kentucky, 2015

Production (bushels)



USDA, National Agricultural Statistics Service