

FHB Impacts on Southeastern Millers, Farmers, Seedsmen, and Breeders

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I come from a small town in South Georgia called Sylvester, graduation class of 62 graduates.

I have been in the seed business for the last 35 years we grow and package wheat for Pioneer and AGSouth Genetics.

The last 4 years have been devastating for our wheat production because of FHB

The entire Southeast and mid-south has dropped in production acres by over 60% in most areas and over 75 % in Georgia and Louisiana.



Millers

Must meet demands/requirements of their customers (bakers/flour makers)

Must meet the minimum government requirements
Local grown by truck vs rail cars

Farmers

Must meet demands/requirements of their customers (miller/feedlot)

Must manage their crop for control of FHB
Follow Land Grant and local buying points advice

Seedsmen

Must meet demands/requirements of their customers (farmers)

Deliver high yield and high disease resistant planting seed
Educate their dealers on how to support their growers
Reach out to Land Grants and ensure they are on top of FHB in their area

Breeders

Must meet demands/requirements of their customers (All the above)

Must have yield, and disease package for the area covered

Overview and Questions

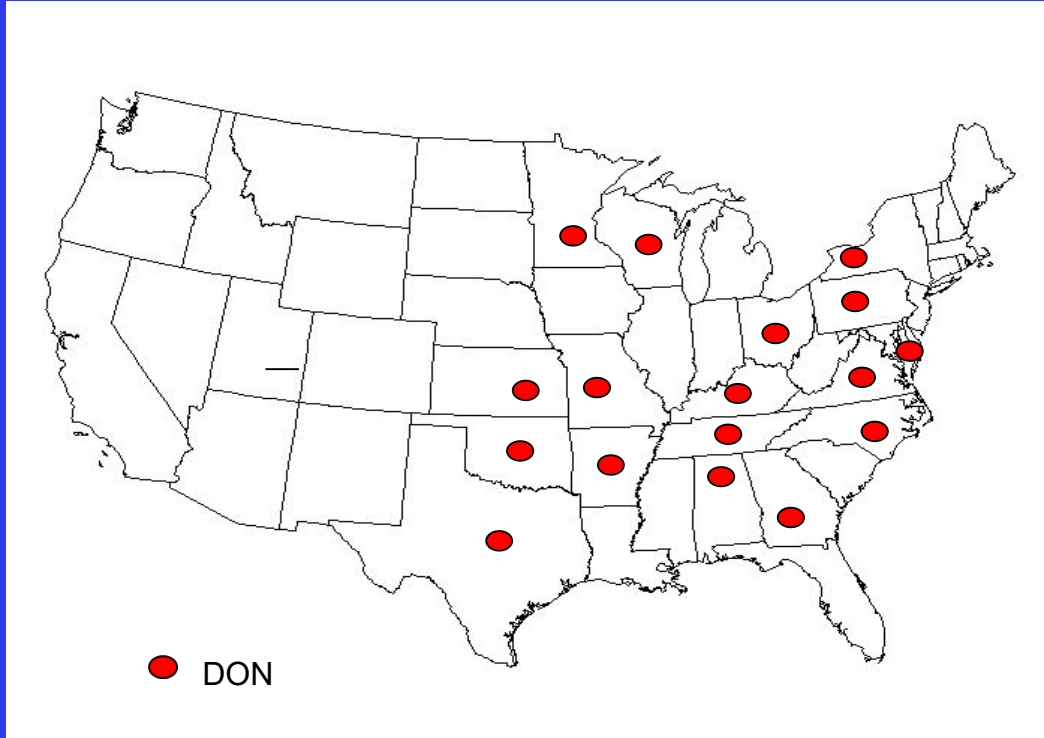
All the above, must meet demands/requirements of their customers



Millers must meet demands/requirements of their customers (bakers/flour marketers).

The millers are often portrayed as the villain, but they are not. This came from Pat Frasco of NeoGen Slide





September 5th, 2017 HARVEST
– DON REPORTS – Wheat-
Barley
BY NEOGEN CORPORATION –
MILLING & GRAIN

Pat checked the DON Maps for wheat and they include upper level reports as follows for last couple years. The maps denoted by red dots in states with confirmed high levels of FHB/DON and on second page a legend with the risk levels.

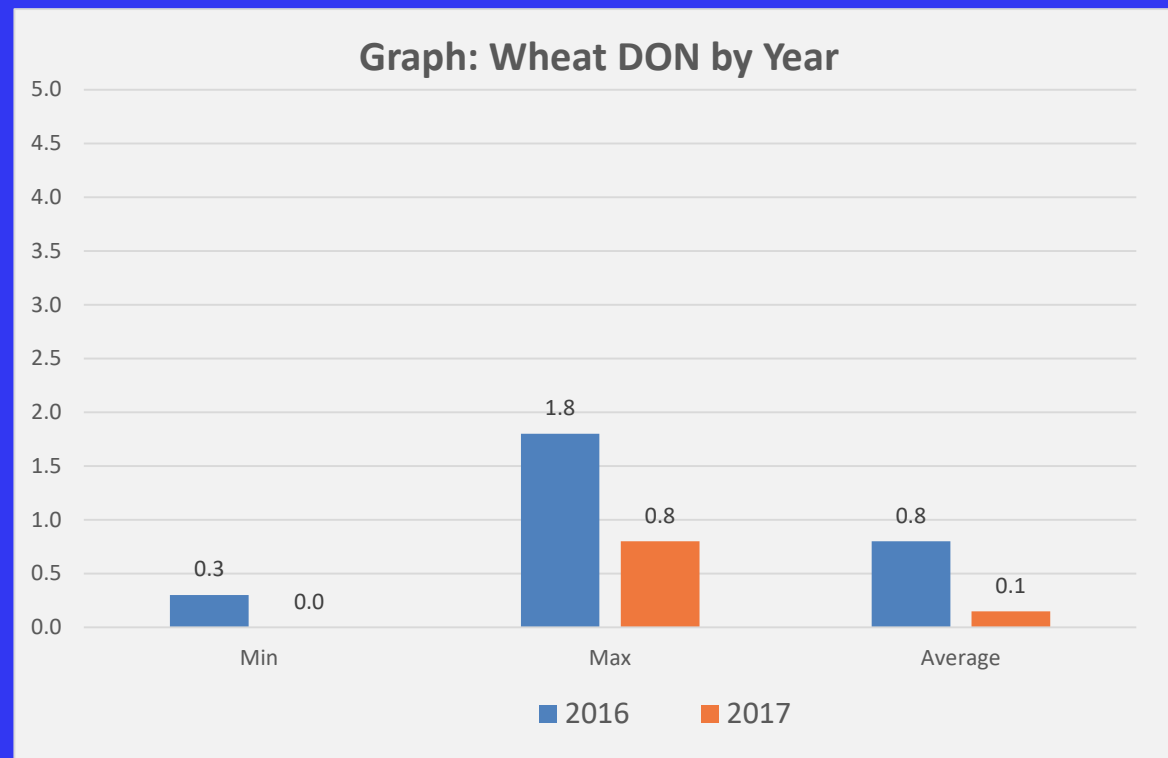
FOR **2017** GA > 1 ppm (not much planted in Georgia), NC > 7 ppm, AL > 5 ppm, TN > 4 ppm, AR > 2 ppm.

2016 GA > 4 ppm, NC > 5 ppm



Ardent Mills is the main miller in Georgia and this is their assessment of the DON levels in the Southeast

Table: Wheat DON by year				
Year	Min	Max	Average	# samples
2016	0.3	1.8	0.8	6
2017	0.0	0.8	0.1	21



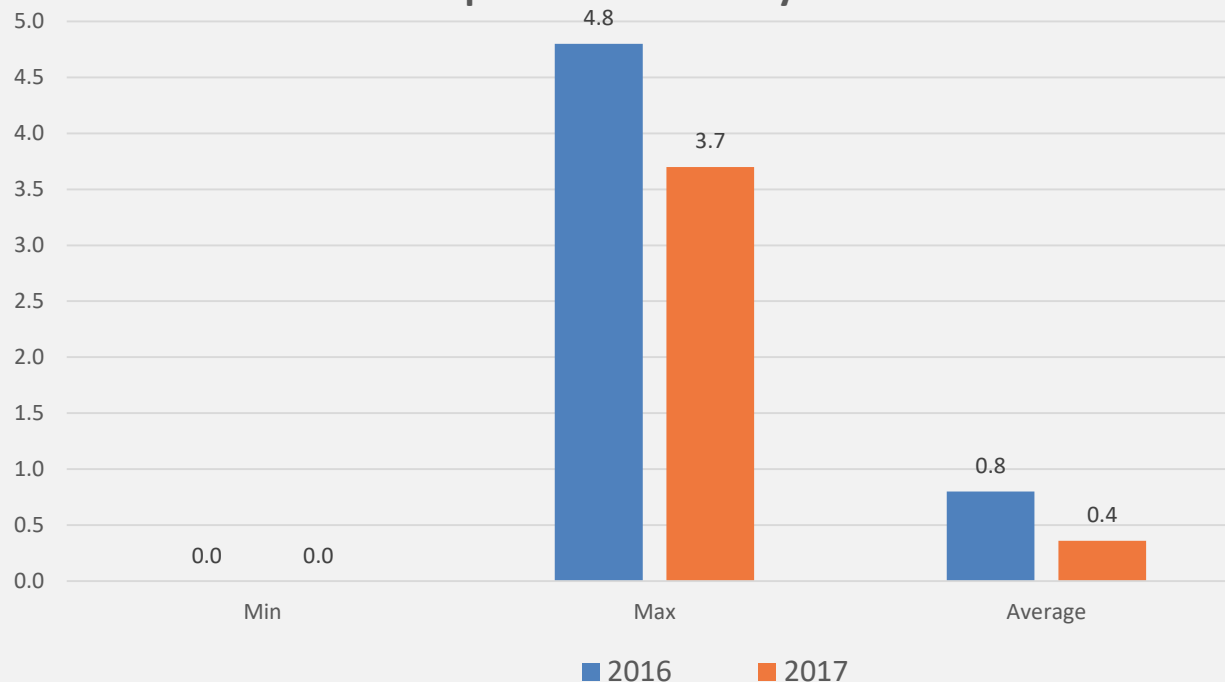
Southeast US Harvest Wheat Vomitoxin (DON)

Table: Wheat DON by year

Year	Min	Max	Average	# samples
2016	0.0	4.8	0.8	62
2017	0.0	3.7	0.4	92

*Includes: Alabama
Florida
Georgia
Kentucky
Mississippi
North Carolina
South Carolina
Tennessee
Maryland
Virginia
W. Virginia

Graph: Wheat DON by Year



Millers could not meet the requirements of their customers therefore they could not use Southeast wheat One Miller was offering \$.75 FOB for wheat with < 1% DON on Dec. 1 st





DON (deoxynivalenol) = "vomitoxin"

Wheat: FDA recommended DON ceilings

2 ppm -- food-grade wheat

1 ppm -- flour

5 ppm -- swine feed

10 ppm -- ruminants, poultry feed



1 ppm for flour was impossible for farmers to meet if you had any FHB kernels in your crop.

I had farmers that could not sell anyone their crop because their DON levels were over 7% (Cows can only eat so much). One Farmer had 10,000+ bushels in a bin (2016 crop) he had to empty to put in new crop corn, I never found out what he did with the wheat. **He planted 0 acres for 2017.** Farmers only had 1 in 2016 and 2 in 2017 **moderately FHB resistant** varieties to plant. Even with those they had to follow meet very strict spraying guideline to get 40 +% control in non-resistant varieties *and* MR varieties + fungicide could give up to 85% control



40% disease control on a susceptible variety....

Might mean this
...instead of this



**MR varieties
+ Fungicide when needed**

Integrated management

Then the problem of getting Farmers to spray at the correct time proves difficult at best

When to spray wheat for scab:

Best timing



**Early flowering
(growth stage
10.5.1)**



Up to 7 days later

Farmers could not meet demands/requirements of their customers (miller/feedlot) therefore they could not afford to plant wheat.

Seedsman had very little seed to condition because at the present time 2 varieties that are adaptable to our area and farmers just didn't believe they could take the chance of not getting control of FHB so they just did not plant.

Seedsman could meet demands/requirements of their customers (farmers) therefore they did not condition wheat very much.



In 2012 the southeast corn crop had a severe problem with fusarium.

The fall planting of wheat just expanded the problem and kept the pathogen very viable (once you have it you've got it).

Traditional breeding takes 10-12 years to bring a new cross to commercialization.

Some Land Grants (SunGrains) are using the Doubled Haploid breeding tool to decrease the time to 8-10 years.

USDA-ARS should put resources into Doubled Haploid production for all wheat breeders.



This is great but all the above need the new RESISTANT varieties now to meet the demands of their customers.

The Breeding of resistant varieties is the only way all the above parties demands can be met.

FHB is the **villain** that has caused all the economic problems from the crop protection group (no crop to apply their services) bankers (lack of July cash flow form their customers), seedsmen (no wheat to condition), and farmers (no rotation and no cash flow for bankers)



Breeders must meet demands/requirements of their customers.

Until then all we can do in Georgia is hope for no rainfall from March 15th till April 10th

