

NC STATE ECONOMIST

What Do We Know About Wheat Procurement in North Carolina?

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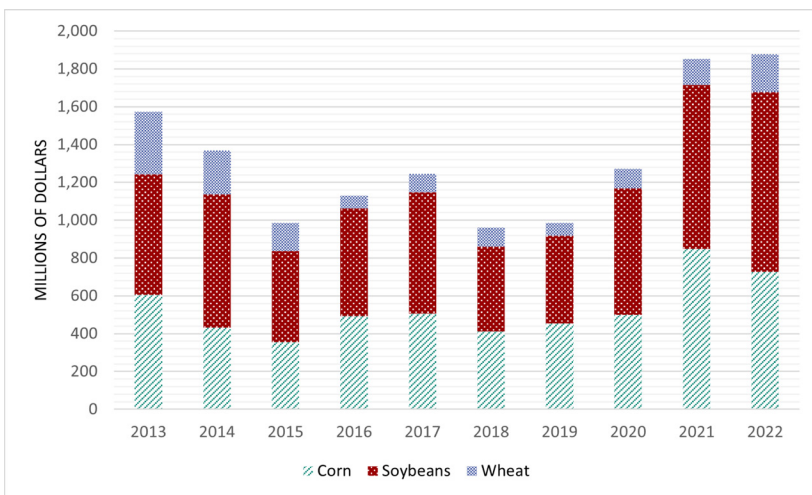
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Introduction

Grains and oilseeds are critical inputs to livestock production, as well as other end uses. Until now, however, grain procurement practices and preferences in a grain deficit¹ state like North Carolina (NC) have not been comprehensively collected or publicly documented. This is important because after livestock, grains and oilseeds are the largest contributors to the North Carolina agricultural economy by cash receipts (NCDA 2022). According to USDA data shown in Figure 1, the collective value of NC corn, soybean, and wheat production has ranged between \$962M and \$1,879M for the past ten years.

To better understand the unique challenges their customers face, the North Carolina Small Grain Growers Association sponsored a survey of wheat buyers. The survey covered procurement preferences, types of services offered by wheat buyers, logistics challenges they experienced, and other related topics. Although many questions were specific to wheat, general information about grain and oilseed merchandising was also collected. In this article we present key findings of this study and consider their implications for the grain merchandising industry in North Carolina. The results suggest grain buyers face labor and export challenges, but also may have opportunities to increase profitability in the grain supply chain by providing enhanced products and services.

Figure 1. North Carolina Corn, Soybean, and Wheat Production Value 2013-2022



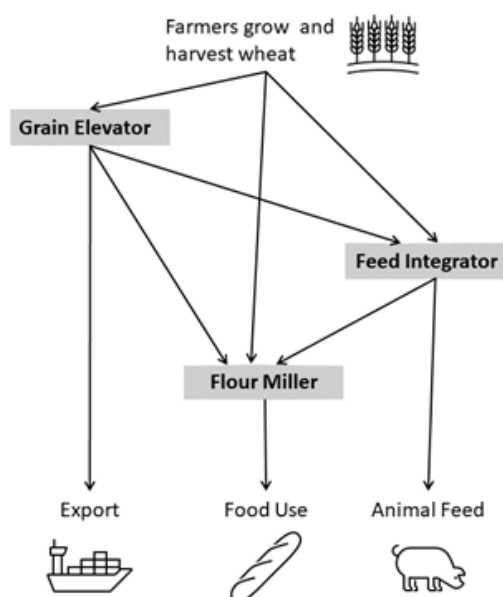
Note: Authors' calculations using data from the USDA National Agricultural Statistics Service.

Who Was Included in the Survey?

There are different types of wheat buyers; some businesses, such as country grain elevators, add

¹ In 2018 livestock feed needs were estimated at 310M bushels while the state produced 154M bushels of feed grains, leaving a deficit of more than 156 million bushels per year that had to be procured from outside North Carolina.

Figure 2. North Carolina Wheat Supply



value to the grain supply chain solely through grain handling and merchandising, while other businesses primarily use wheat as an input for flour or livestock production. Shown in Figure 2, there are various paths wheat may take from the field to its end use: food use, animal feed, or export.

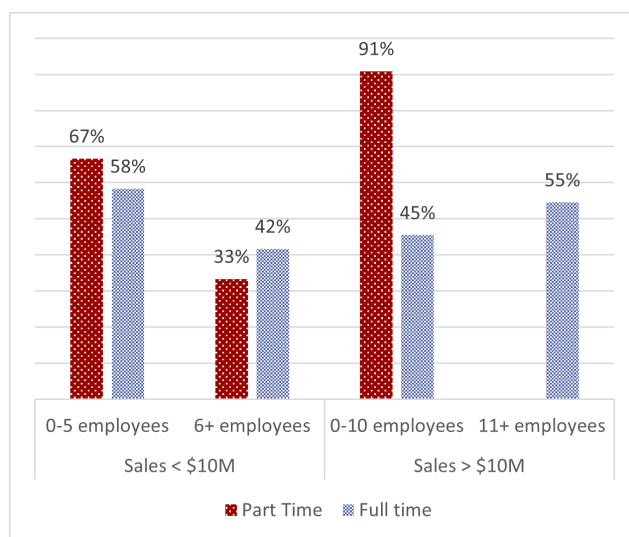
All possible wheat buying locations were identified using a combination of records of those who paid checkoffs, which are mandatory tax assessments of all NC wheat sales, and business activity data from Data Axle.² Some firms have multiple sites where some locations may be used for activities other than grain procurement; in these cases, each location was surveyed separately. In total, 145 North Carolina locations were identified. Each location was contacted up to three times via mail, phone, or email, resulting in 45 responses. Among these, 17 indicated the survey was not relevant to their location for a variety of reasons, leaving 28 remaining responses from verified wheat buying locations.

A Richer Portrait of Wheat Buyers in North Carolina

A substantial portion of the locations surveyed are family-owned (57 percent) or privately held (29 percent) and most locations have been operating for over 21 years. In terms of the scope of their activities within the grain business, many locations reported more than one type of marketing and value-added activity: 54 percent sell wheat locally, 25 percent mill wheat into flour, 21 percent export grains or oilseeds internationally, and 21 percent produce livestock feed. When considering revenue sources other than grain handling, 30 percent reported farming as significant, and 41 percent reported other activities beyond both grain handling and farming as significant. Figure 3 presents the percentages of full-time and part-time employment by respondents' sales volumes. Generally, locations with a larger full-time workforce also had a larger part-time workforce, indicating there is a large range of business sizes. However, while some locations can be small in terms of the number of employees, they engage in a diverse set of revenue-generating activities.

The age distribution of the survey participants

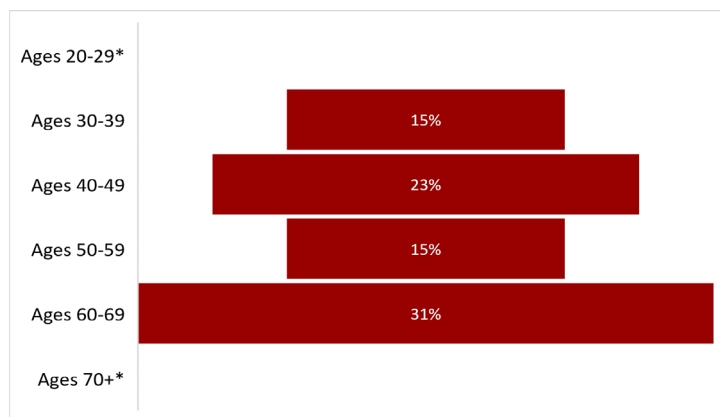
Figure 3. Number of Employees by Type and 2021 Sales Volume



Note: Authors' calculations based on valid survey responses and using 2021 sales volumes from Data Axle.

² Data Axle is a business activity database that includes information such as company names, locations, sales volumes, executive titles, and other corporate information.

Figure 4. Respondent Age



Note: Authors' calculations using valid survey responses. Age categories indicated with an asterisk are suppressed for confidentiality.³

follows a similar pattern to what we see in agriculture. The age distribution shown in Figure 4 is skewed towards older adults who may soon exit the labor force due to retirement. The most recent USDA Census of Agriculture, which provides information about farmers nationwide, shows that the average age of farm producers is 57.5 years old, and this average age has been increasing over time (USDA NASS 2019). This could cause difficulties for the grain handling industry when it comes to finding new people to replace the existing talent. While this survey indicates a potential concern, more investigation into these labor issues is needed.

Procurement Preferences

As shown in Table 1, nearly all buyers offered farmers an assortment of standard contracts to facilitate hedging. The simplest type is a forward price contract where a farmer agrees to deliver a certain quantity of wheat at harvest and in exchange the wheat buyer agrees to a price in advance. In this way the buyer ensures they will be able to procure a minimum quantity of this season's harvest which helps the buyer make plans for their merchandising or processing business. The most common contracts used were forward price followed by basis contracts – which are contracts that lock in the local price premium that will be paid on top of the futures market price. Some buyers made available additional contract types but indicated that they were not favored due to their complexity and infrequent use by farmers.

Surprisingly, respondents did not indicate a strong preference for procuring grain via a contract versus simply purchasing during harvest time. Fifty eight percent preferred contracting but the remaining respondents preferred purchasing at harvest or did not have a preference between the two. However, among locations that mill wheat into flour, 100 percent indicated a preference for forward contracting. This provides evidence that, despite grains and oilseeds being raw commodities, the end use influences buyer behavior.

Table 1. Contract Types Available to Farmers

Contract Type	Locations Offering Contract Type (%)
Basis	77
Forward Price	88
Hedge to Arrive	31
Other	15
Both Basis and Forward Price	69

When Does Quality Matter?

The importance of different wheat quality characteristics also varied by end use. For businesses involved in milling wheat into flour, high quality inputs are crucial for their operations. On the other hand, feed integrators, who produce livestock feed, expressed flexibility in the quality of wheat they use citing that they were able to substitute wheat and corn ingredients. When it came to international wheat buyers, the survey respondents highlighted that test weight, falling number, and DON levels held greater significance compared to domestic feed use.⁴ This suggests that international buyer

³ In order to share results, they must include representations of three or more locations.

⁴ Test weight is a measurement of grain density (e.g. pounds per bushel). A falling number is related to starches in the seed which affects baking properties. DON is a vomitoxin that is toxic to humans and livestock above certain levels.

preferences for wheat more closely align with domestic food buyers than feed buyers.

Around one-third of the respondents indicated that customers expressed interest in wheat with product attributes or production practices that can be difficult to observe or verify at later stages in the supply chain. Collectively these are referred to as credence attributes; examples include wheat that is organically certified or produced using sustainable farming practices. There may be untapped value in NC grains through product segregation and by increasing supply chain traceability and visibility, allowing for better transparency and assurance of the desired attributes.

Procurement Strategies

In addition to looking into what wheat buyers are seeking in terms of the products and procurement process, the survey investigated how buyers persuade farmers to sell grain to their location versus to their competitors. Eighty one percent indicated offering higher prices was a primary strategy. However, other factors that were thought to be important were specialty services, facility efficiency, and extra offerings such as discounts on seeds or other inputs. Specialty services included options such as grain storage, grain drying, and the marketing options discussed previously. About half of respondents offered all three of these services.



Photo by Jenny Carleo

Regarding facility efficiency, buyers sought to minimize the time farmers spend in line waiting to unload their wheat; 57 percent said their average wait times during harvest were 30 minutes or less. Furthermore, 39 percent had a system in place to provide people making deliveries with information about the unloading wait times. These systems could be a webcam showing the number of people in line, or a phone system. In some cases, farmers do not have to deliver directly to a buyer location since 61 percent of buyers indicated farm pick-up services were available. Overall, buyers indicated that offering favorable prices followed by ease of doing business were important for securing procurement volumes from local producers.

Logistic Challenges in Wheat Procurement

One challenge the respondents noted was problematic infrastructure. Specifically, some buyers have roads or bridges in their vicinity that have weight restrictions preventing fully loaded trucks from taking the most direct route to or from their facility. Since only one-third of respondents have access to rail service, these restrictions create obstacles for both grain incoming from the field as well as outgoing distribution. These infrastructure challenges impact the efficiency and cost-effectiveness of NC's grain supply chain.

Among the 30 percent of respondents that engaged in international sales of grains or oilseeds, three-quarters utilized the Port of Norfolk, VA as their primary export gateway. In contrast, only half relied on the Port of Wilmington, NC - although some locations utilized both ports for their export activities.

Based on 2006-2021 S&P Global⁵ export data, wheat exported through Wilmington largely went to China, and wheat exported through Norfolk largely went to Egypt, Brazil, and Mexico. A noteworthy challenge expressed by many exporting locations was the difficulty in obtaining shipping containers. This issue holds particular relevance for locations that expressed an interest in entering the export market since the quantities required for dry bulk shipping can be prohibitively large. Addressing this challenge and finding effective solutions could prove highly valuable to these locations as they explore opportunities in international trade – especially for value-added characteristics or unique varieties.

Concluding Thoughts

This study aimed to systematically collect primary data to document the current business environment faced by wheat buyers. The results will benefit us in the future. While industry participants are unlikely to be surprised by our findings, these results offer baseline data which will allow trends to be tracked over time. In addition, these results provide us insights into the prevalence of specific challenges, enabling those who support NC's agricultural community to allocate their time and resources effectively as the business landscape evolves and new challenges arise.

References

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⁵ Formerly IHS Markit.