

Explained in Brief

Durum Wheat in Alberta

Ag-Economics Analytics

Importance

Canada is the largest producer of durum wheat in the world, harvesting five million metric tonnes annually on average. Canada also leads the world in durum wheat exports with about 40 per cent of the market share. Canada's exports go primarily to Algeria, Italy, Morocco and the U.S. The majority of durum wheat acres are seeded in Saskatchewan (85 per cent of total), followed by Alberta (15 per cent of total). Durum wheat is used primarily for pasta making.

Breeding

Durum wheat is predominantly a self-pollinating species. Historically, breeding was focused on gluten and protein content, yellow pigment, yield, and more recently on disease resistance, especially to Fusarium Head Blight. Breeding efforts are mainly publicly funded, as private investors are interested in more profitable hybrid crops like corn, soybeans, and canola. Currently, there is no genetically modified wheat approved or commercially grown anywhere in the world.

Durum is naturally more drought tolerant than other types of wheat and well suited in areas with low precipitation. Good yields can be obtained by irrigation and adequate amounts of nitrogen, phosphorus and potassium fertilizers.

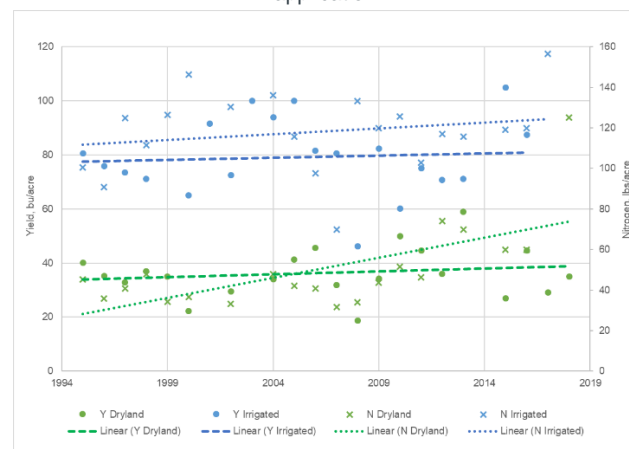
Yields and production

In Alberta, 1.18 million acres were planted to durum wheat in 2018, while 2019 saw a 34 per cent decrease to 780,000 seeded acres. This decrease

was primarily due to reductions in durum wheat exports to Italy because of their restrictive country of origin labeling legislation.

According to Statistics Canada, the 10-year average durum wheat yield is 43 bu/acre. AgriProfit\$ cost of production data shows that yield is twice as high on irrigated land when compared to dryland. To support this higher production on irrigated land, higher nitrogen fertilizer rates are used (Figure 1).

Figure 1. Annual average durum yield (Y) and nitrogen (N) application

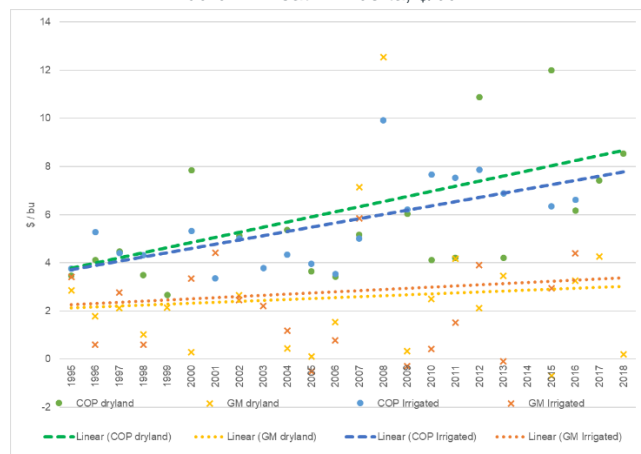


This is expected, as irrigated crops require higher levels of fertilizer application to support higher yields and are overall more intensive production systems. Over the years, average durum yield has not grown by much, while application of nitrogen grew slightly, especially on irrigated land (i.e. over time, more pounds of nitrogen are applied per bushel of yield). Despite less than optimal yield increases, durum wheat growers are counting on price premiums for quality (i.e. protein content).

Cost of production and margins

While durum yield on irrigated land is considerably higher than on dryland, the difference between historical cost of production and gross margins in dollars per bushel between both production systems is not very significant (Figure 2). The average gross margin in 1995-2018 on irrigated land and dryland was \$2.76 and \$2.58 per bushel respectively.

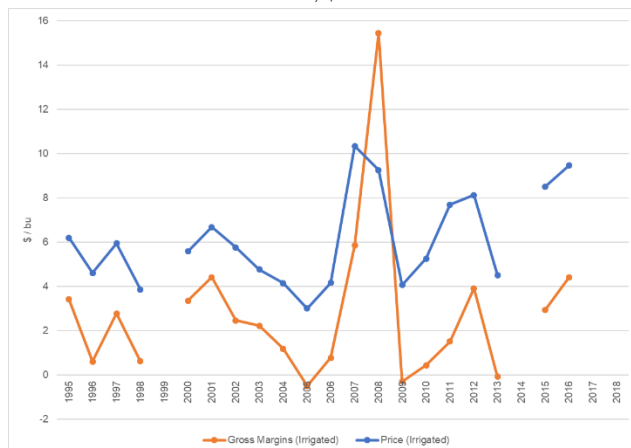
Figure 2. Cost of production (COP) and gross margins (GM) of durum wheat in Alberta, \$/bu



Higher yields definitely produce higher revenues, however higher quantities of inputs are required (see Figure 1 for nitrogen application). When combined with higher fixed operation costs (e.g. irrigation equipment, water and water licenses), gross margins are significantly impacted.

In conclusion, the cost of producing durum has increased over the years due to inflation. Gross margins have grown slightly but fluctuate a lot, as they are driven primarily by durum prices. Figure 3 demonstrates this for irrigated production, with dryland production following a similar pattern. Thus, it is important to track cost of production for this crop. Minimizing the cost of production per bushel may be one of the most effective ways of maintaining profitability of durum wheat.

Figure 3. Gross margins and prices for durum wheat on irrigated land, \$/bu



Take home messages

- Canada is the largest producer and exporter of durum wheat in the world and Alberta grows 1/5 of Canadian durum.
- Durum is naturally more drought tolerant than other types of wheat and well suited in areas with low precipitation.
- Durum wheat yields are much better under irrigation, but require higher inputs. Therefore cost of production and profitability per bushel is only somewhat higher on irrigated land compared to dryland production.
- Nitrogen application trends up slightly over the years in expectation of higher quality crop.
- Durum wheat margins are driven by prices. Minimizing cost of production may be critical to profit from this crop.



AgriProfit\$ is a business analysis and research program operated by Agriculture and Forestry's Economics and Competitiveness Branch. It monitors the ongoing economic and financial performance of Alberta's agricultural sector, and supports informed decision making by government and industry.