2022 State of the Malting Industry

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Agenda

State of the Malting Industry

- 2022 Global Supply
- 2022 NA Supply
- 2022 Crop Quality NA and Crop Transition
- Future Considerations – Competing Crops
- Future Considerations – Climate Change

2022 Barley Crop

Global Supply

NA Supply

Quality Report

Global Barley S & D

- Continued downward trending in world barley supply ending stocks
  - Splicing out the six major growing regions – ARG, AUS, CAN, EU27, UK, UKR, RUS ending stocks have continued to diminish from 16.7 MMT in 19/20 → 16.4 MMT → 13.0 MMT → 9.8 MMT
- As global barley harvests continue, prospects have improved, however, S&D Globally classed as a "tight situation" with regards to carry over inventories year to year

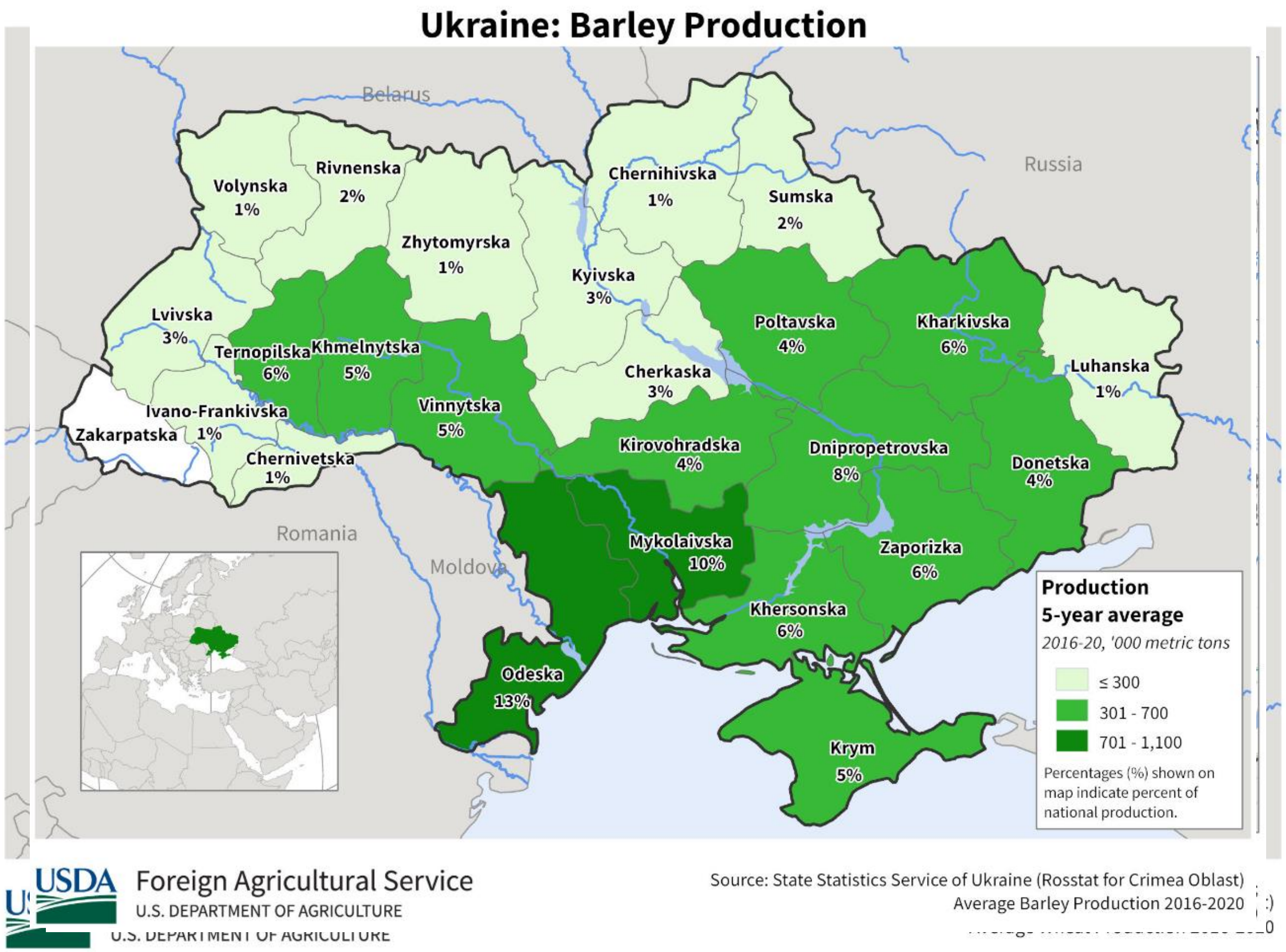
What else is happening in the world to influence S & D?

World Barley Supply & Demand

Worldwide	22/23	21/22	20/21	19/20
Harvested Area (Ha)	49.9	52.8	52.1	51.8
Yield	2.9	2.8	3.0	3.0
Production	146.6	147.7	158.8	155.9
Beginning Stocks	19.0	23.9	21.9	20.0
Imports	32.0	34.1	36.7	29.4
Supply	197.6	205.8	217.4	205.2
Use	147.5	152.7	156.8	153.9
Feed	103.4	108.2	111.4	108.9
Industrial	28.1	27.6	28.0	27.9
Other	16.0	16.9	17.4	17.1
Exports	32.0	34.1	36.7	29.4
Ending Stocks	18.1	19.0	23.9	21.9

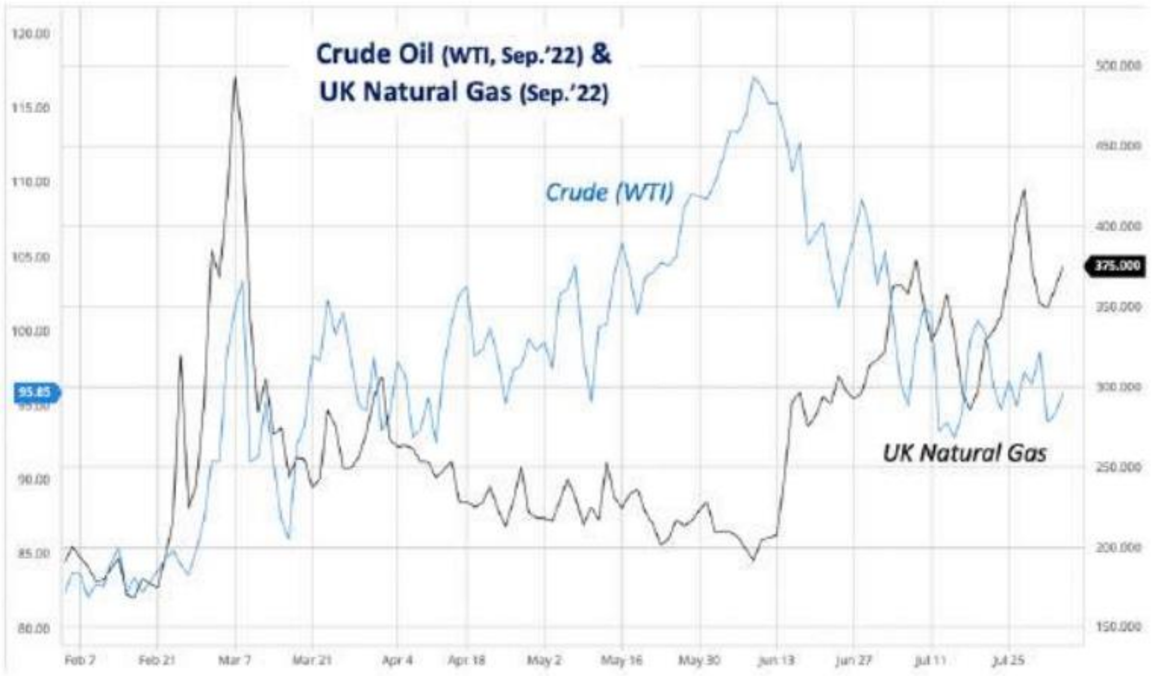
RMI ANALYTICS M Hectares & tons; 25.08.2022

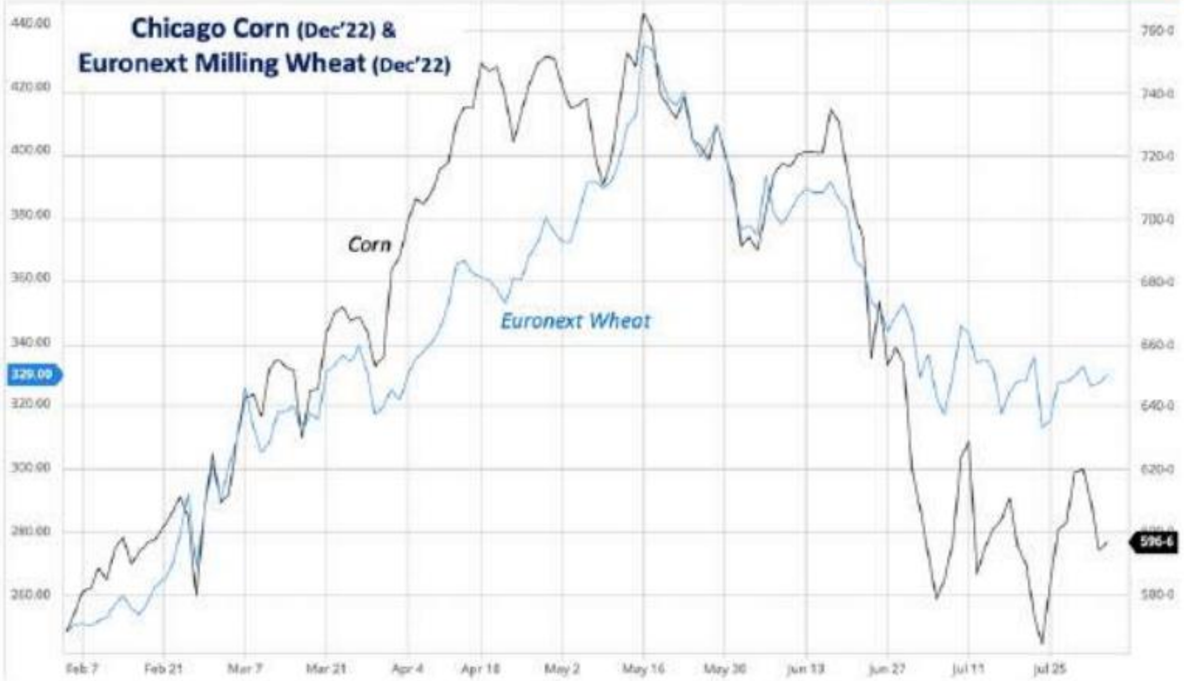
Ukraine / Russia



Ukraine / Russia

- Volatility remains high with wide movements in pricing common
- Impacts of Russia / Ukraine war visible in energy markets and ag markets





What impact does this have on the malting industry?

Farmer:

- Unknown inputs for agricultural practices this year slowed contracting of barley with maltsters
- Ukraine / Russian impact on wheat pricing has triggered farmers to contemplate a swap to competitive crop planting, increasing profitability and reducing risk of poor quality (Malting Specs)

Maltster:

- Losing roughly 45% of yields last year has forced maltsters to buy barley at elevated pricing from atypical sourcing regions for the 2021 crop year / 2022 brew year
- Market volatility due to negligible carry over buffers, weather, geopolitical events has forced malt contracting with customers “on and off” numerous times this year
- Maltsters are having to elevate offers to farmers to secure acreage for malting barley and compete with other agricultural products

Brewers:

- For the 2023 Brew year, malt pricing is up approximately 30 % due to raw barley costing, increased ag input costing (Denoted above), elevated utilities for malt production

2022 Barley Crop

Global Supply | **NA Supply** | Quality Report

USA Barley Crop 2022

BARLEY PRODUCTION SUMMARY

	Seeded (000s acres)		Harvested (000s acres)		Yield (bu/acre)		Production (000s bushels)		
State	**2021**	**2022**	**2021**	**2022**[1]	**2021**	**2022**[1]	**2020**	**2021**	**2022**[1]
Arizona	18	18	14	16	125.0	126.0	976	1,750	2,016
California	40	50	13	22	63.0	45.0	1,457	819	990
Colorado	49	71	47	60	111.0	127.0	6,525	5,217	7,620
Idaho	500	600	490	560	89.0	95.0	55,000	43,610	53,200
Minnesota	45	45	34	35	55.0	56.0	2,350	1,870	1,960
Montana	920	1,090	625	855	38.0	42.0	45,675	23,750	35,910
North Dakota	580	670	430	550	51.0	62.0	28,980	21,930	34,100
Virgina	30	40	7	11	75.0	77.0	441	525	847
Washington	75	90	70	75	38.0	77.0	6,390	2,660	5,775
Wyoming	79	66	70	51	91.0	103.0	5,952	6,370	5,253
Other States[2]	267	276	148	145	62.0	70.2	11,578	9,172	10,177
Total U.S.	**2,603**	**3,026**	**1,948**	**2,380**	**60.4**	**66.3**	**165,324**	**117,673**	**157,848**

Source: USDA NASS Agriculture Statistics Board, August 12, 2022 Crop Production Report

[1]Forecasted August 1, 2022

[2]Other States include: Alaska, Delaware, Kansas, Maine, Maryland, Michigan, New York, North Carolina, Oregon, Pennsylvania, South Dakota, Utah, and Wisconsin. Individual State level estimates will be published in the Small Grains 2022 Summary.

CANADA Barley Crop 2022

Barley [a]: June 20, 2022

	2020-2021	2021-2022[f]	2022-2023[f]
Area seeded (kha)	3,060	3,357	3,032
Area harvested (kha)	2,809	3,002	2,720
Yield (t/ha)	3.82	2.31	3.42
Production (kt)	10,741	6,948	9,300
Imports (kt) [b]	294	200	60
Total supply (kt)	11,991	7,859	9,760
Exports (kt) [c]	4,277	2,590	3,050
Food and Industrial Use (kt) [d]	299	289	319
Feed, Waste & Dockage (kt)	6,417	4,320	5,611
Total Domestic Use (kt) [e]	7,003	4,869	6,210
Carry-out Stocks (kt)	711	400	500
Average Price ($/t) [g]	294	435	400

[a] Crop year is August-July.
[b] Imports exclude products.
[c] Exports include grain products but exclude oilseed products.
[d] Food and Industrial Use for soybeans is based on data from the Canadian Oilseed Processors Association.
[e] Total domestic use equals Food and industrial use plus Feed waste and dockage plus Seed use plus Loss in handling
[g] Specification of crops for crop year average prices: Barley (No.1 feed, cash, in-store Lethbridge).
kha: kilohectares
t/ha: tonnes per hectare
kt: kilotonnes
$/t: dollars per tonne
f: forecast by AAFC except for area, yield and production for 2021-2022 which are STC
Source: Statistics Canada

2022 Barley Crop

Global Supply

NA Supply

Quality Report

2022 NA Crop Quality

Canada – AB (30% complete), SK (25% complete), MB (<10%)

- Mixed quality expected to come out of Canada this year
  - AB – North/Mid 95%+ Plumps 10.5% -11.5% Protein, South 80% Plump, 12.5-13.5% Protein
  - SK - 90-95% Plumps, 11.5% – 13.0% Protein
  - MB – 90-95% Plumps, 12% - 13% Protein
- To date there are no major concerns with DON (Deoxynivalenol) in Alberta, Saskatchewan, Manitoba

USA – ID (80% complete), MT (85% complete), WA (70% complete), ND/SD (50% complete), WY/CO (95% complete)

- Variable across all regions – Protein, Plump
  - ID, MT, WY – 30% Plump → 97% Plump, 8% Protein → 17% Protein
  - WA – Protein and plump band is tighter with less variability – 9% → 14% Protein , 75% → 90% Plump
  - Typical year – 9.5% → 12.5% Protein, 82% → 93% Plump
  - ND – Concerns of DON

Outlook is still optimistic vs. last year

2022 Global Crop Quality

- **EU27 + UK**
  - Crop quality variable depending on harvest locations
    - Heat waves the primary cause of pocketed quality in some regions
  - Harvest weather has been reasonable; however, some rain interruptions have been reported

EU-27 + UK	22/23	21/22	20/21	19/20
Harvested Area (Ha)	11.6	11.5	12.4	12.4
Yield	4.9	5.1	5.0	5.1
Production	57.18	59.8	62.1	63.6
Beginning Stocks	6.4	9.4	10.7	8.8
Imports	1.1	0.8	1.4	0.6
Supply	64.7	70.0	74.1	73.1
Domestic Use	51.7	52.3	53.6	54.2
Feed	36.8	37.4	38.8	38.9
Malt/Industrial	11.7	11.7	11.4	11.9
Other	3.2	3.2	3.4	3.4
Exports	7.8	11.3	11.1	8.2
Ending Stocks	5.3	6.4	9.4	10.7

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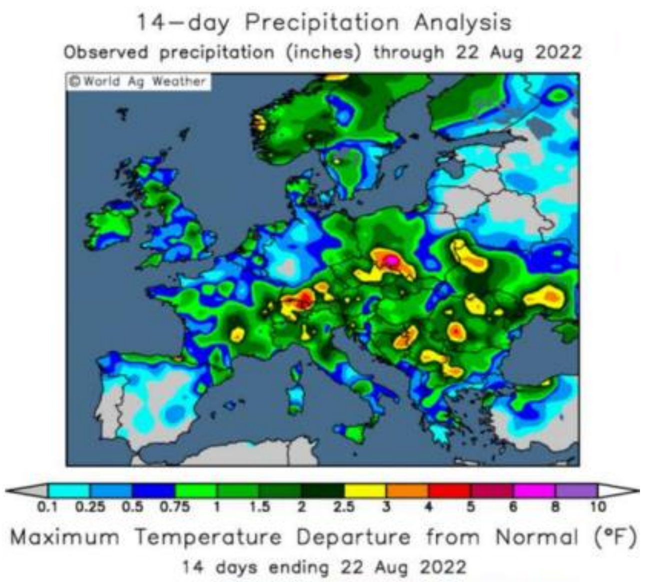

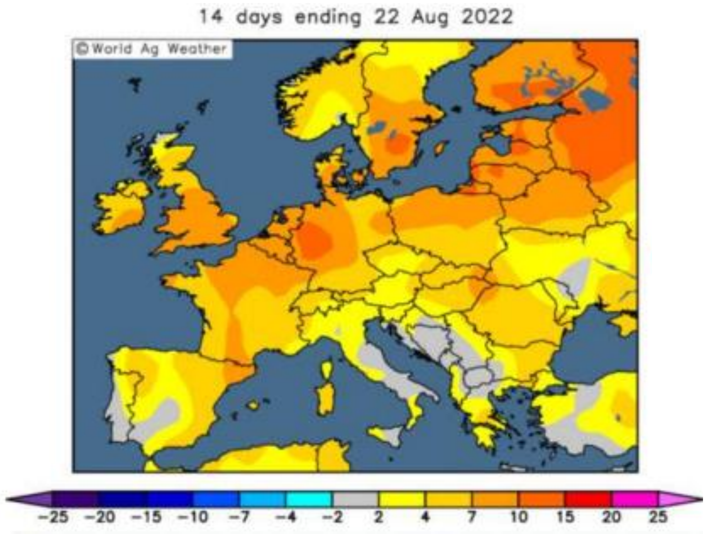

Future Considerations

Competing Crops

Changing Climate

Future Considerations

Competing Crops

ID

- Soft White Wheat – Fertilizer is approximately double of that required for barley
- Alfalfa - Swath, Rake, Bailer – 9 Tractor passes vs. 3 tractor passes on barley

ND

- Pulse Crops - Lentils and Soybean – Barley and wheat get the remaining acreage

CANADA

- The feed barley market pricing has jumped back up to malting barley pricing (Past 1.5 weeks)
  - 20% greater yields on feed vs. malting quality barley
  - Currently - Same market price with minimal specifications (Dry/Plump)
- Corn Quality in the USA not that great due to heat waves tearing through major growing regions
  - This has triggered Canadian trading of corn into USA
- Other competing crops in Canada – Canola, Oats
  - Yields very good, revenue generation good, inputs very costly

Future Considerations

Competing Crops

Climate Change

Future Considerations

Climate Change

As maltsters, it is a top priority to ensure that we do what we can to promote / create sustainable practices! Here are a few initiatives that we continue to drive with our farmers and customers:

- Zero till
  - Reduction of water loss through run off (Organic material acts as sponge and reduces soil erosion)
  - Carbon sequestering
  - Reduction of cost inputs for land preparation

- Adapting with varietal improvements
  - Barley yields driving planted acreage through farmer revenue, disease resistance, catering to growing conditions and climate, growing region success

- Winter barley and facultative barley programs
  - Reduced water input in field
  - Reduced soil erosion
  - Good yields for farmers and potential for improved extracts for brewers/distillers
  - Risk mitigation with earlier harvest windows

QUESTIONS?

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