# GRAIN CONSUMPTION AND LOSS IN THE US

## A DATA ANALYSIS

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# Contents:

- What are grains?
- What are the benefits of grains?
- What is grain loss?
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# What are grains?

- Hard and dry seeds of grain crops "dry fruits" that are edible.
- Examples: barley, oat, wheat, corn, and rice.
- Whole grain vs. Refined grain
- Parts of whole grain: bran, endosperm, and germ.
- Milling removes bran and germ.
- Bran and germ have fiber, vitamins B and E, protein, healthy fats, minerals, and antioxidants.
- Endosperm has carbs.
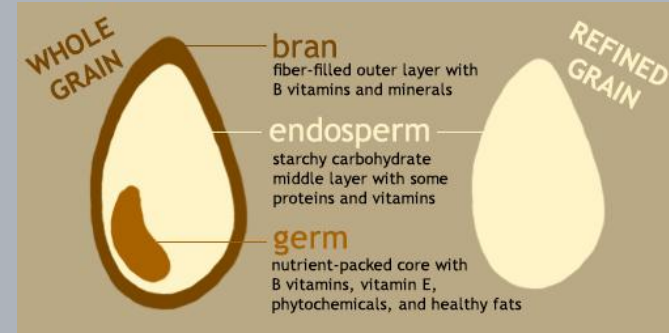
# What are the benefits of grains?

- Consumed by humans, livestock, and poultry.
- Used to make bread, pasta, oatmeal, breakfast cereals, tortillas, etc.
- Some benefits:
  - Cardiovascular benefits
  - Lowers triglyceride
  - Inversely correlated with hypertension and obesity
  - Helps digestion
  - Lowers blood sugar
- 8 ounce / day = 8 slices of bread, 8 cups of cereal, or 4 cups of rice or pasta.
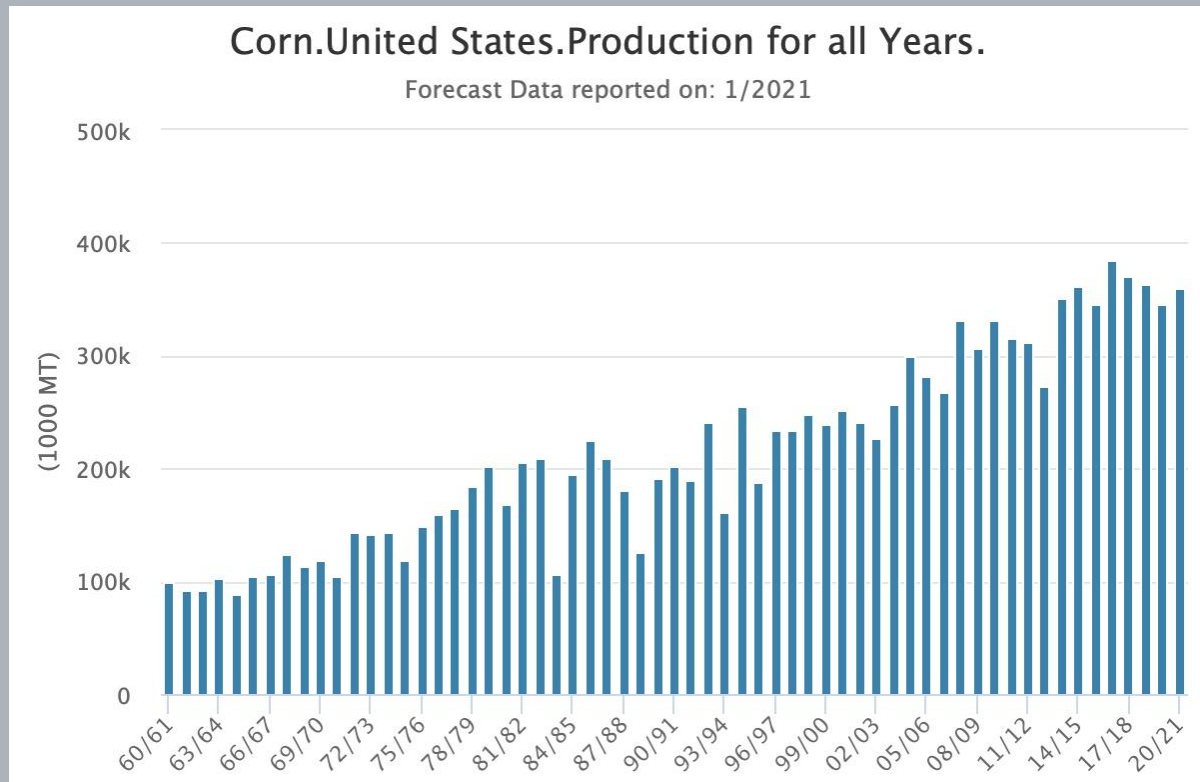
# What is grain loss?

- Grain that becomes unfit for consumption by humans, livestock, or poultry before, during, or after harvest.
- Grain loss vs. Grain waste
- Loss may occur pre-harvest due to pests and diseases.
- Loss may occur during or post-harvest due to inefficient tools or storage facilities.
- Developing vs. Developed countries.
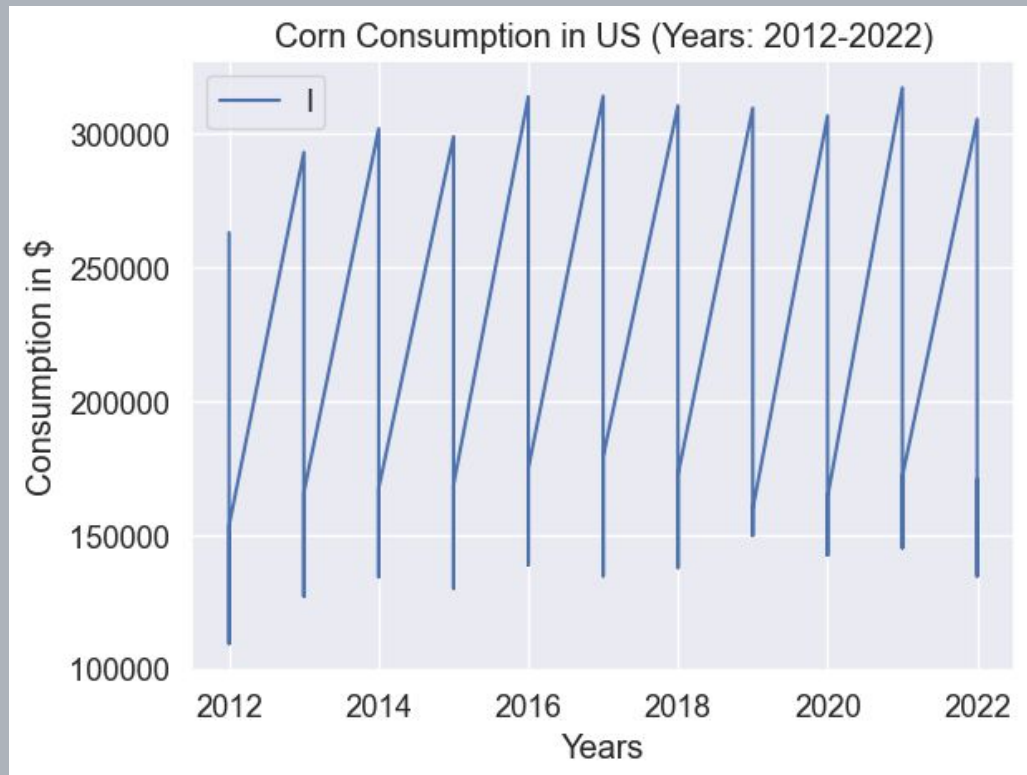- 1/2 of the world's grain is produced in China, India, and US.
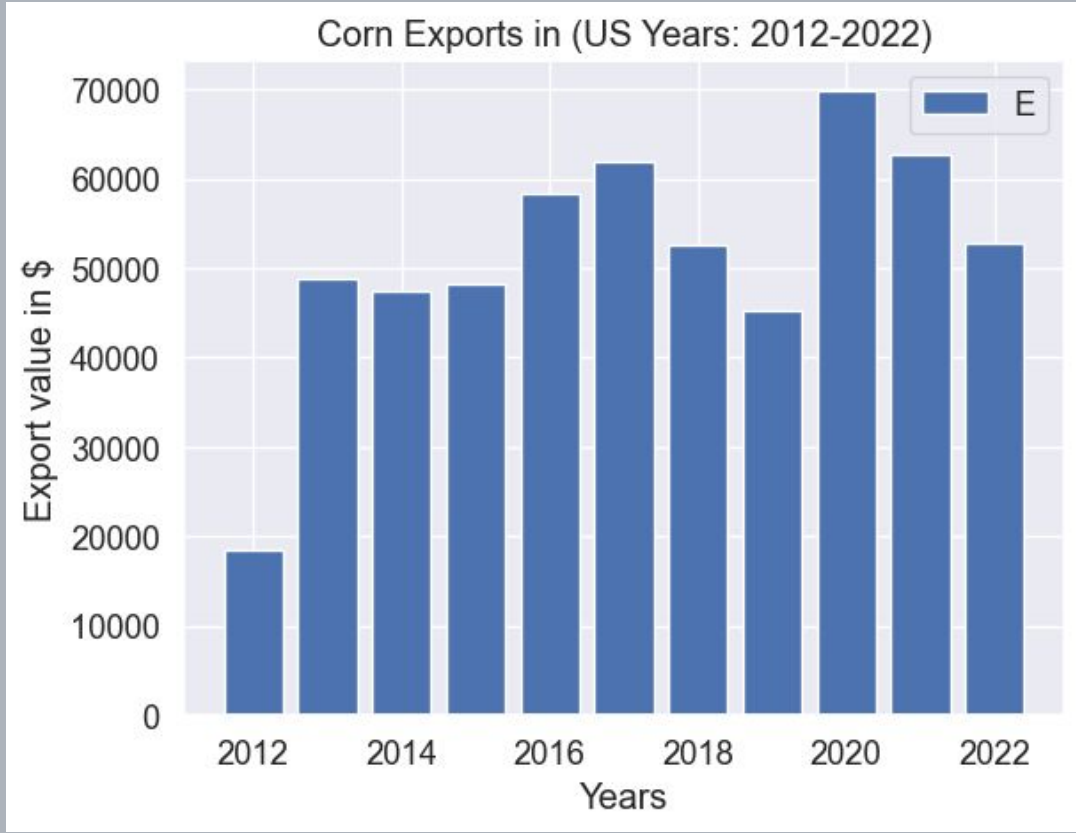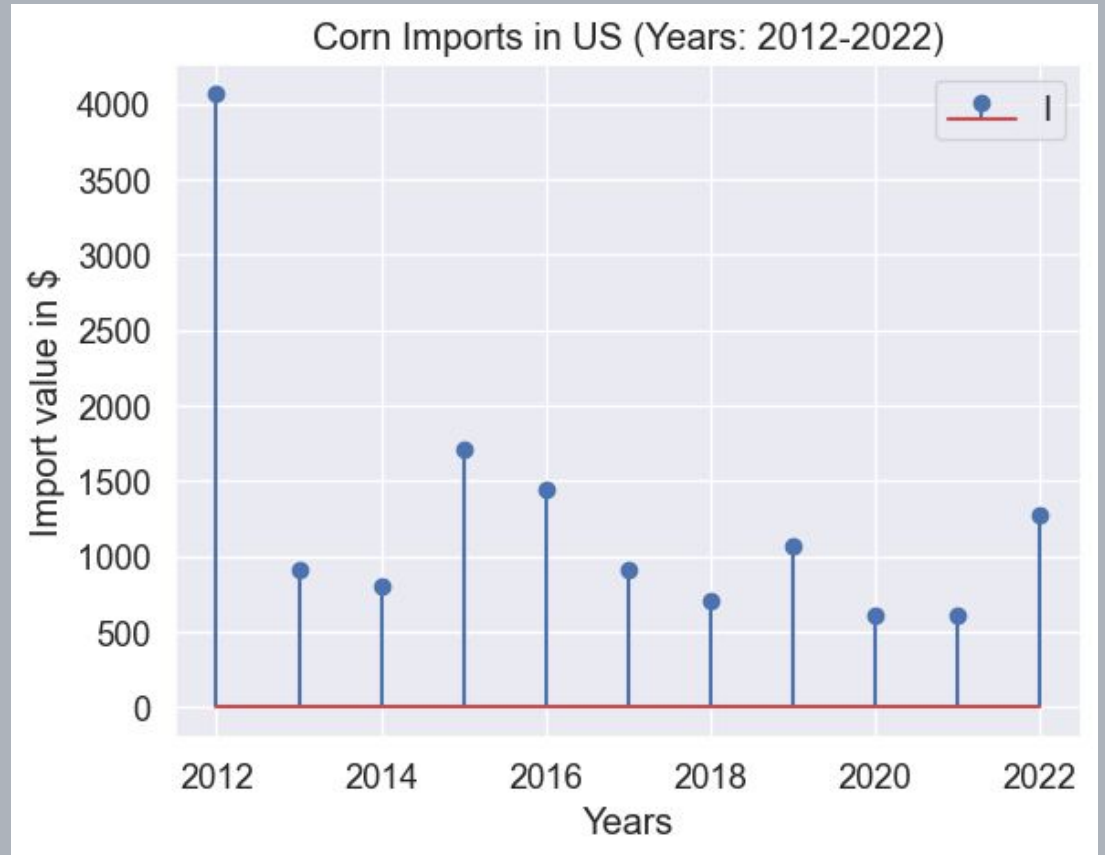
# Corn Production in US

(2012 – 2022)



**Corn.United States.Production for all Years.**

Forecast Data reported on: 1/2021

# Corn Consumption in US

(2012 – 2022)



Corn Consumption in US (Years: 2012-2022)

# Corn Export in US

(2012 – 2022)
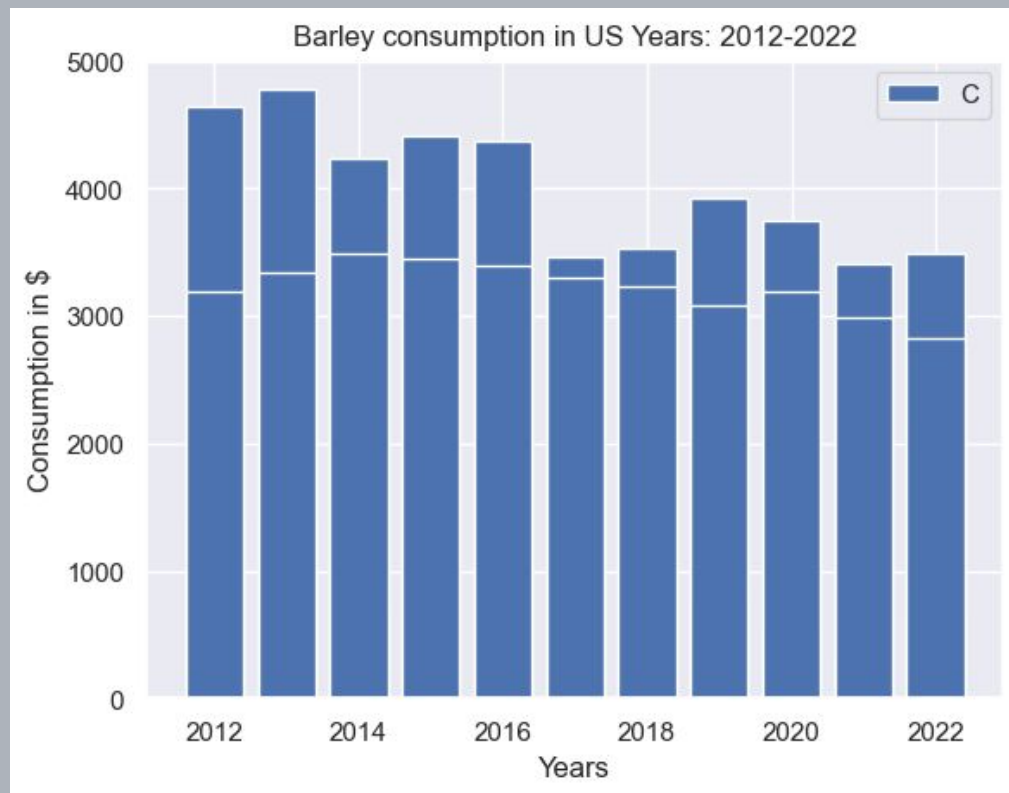


Corn Exports in (US Years: 2012-2022)
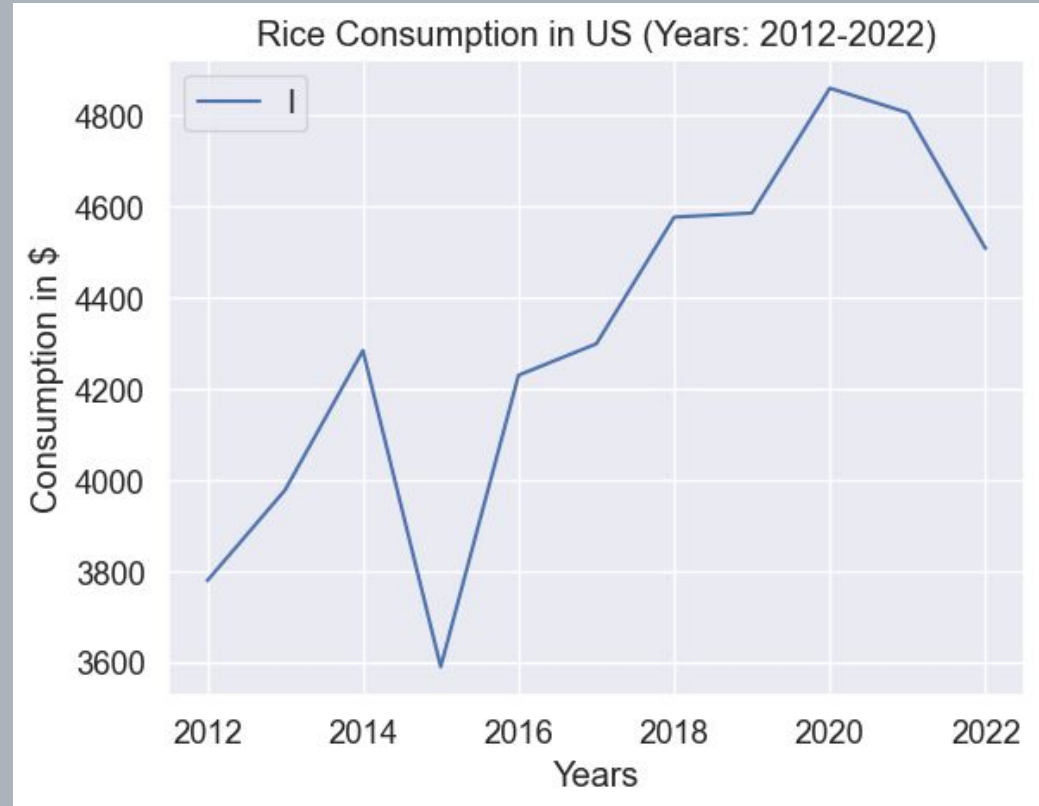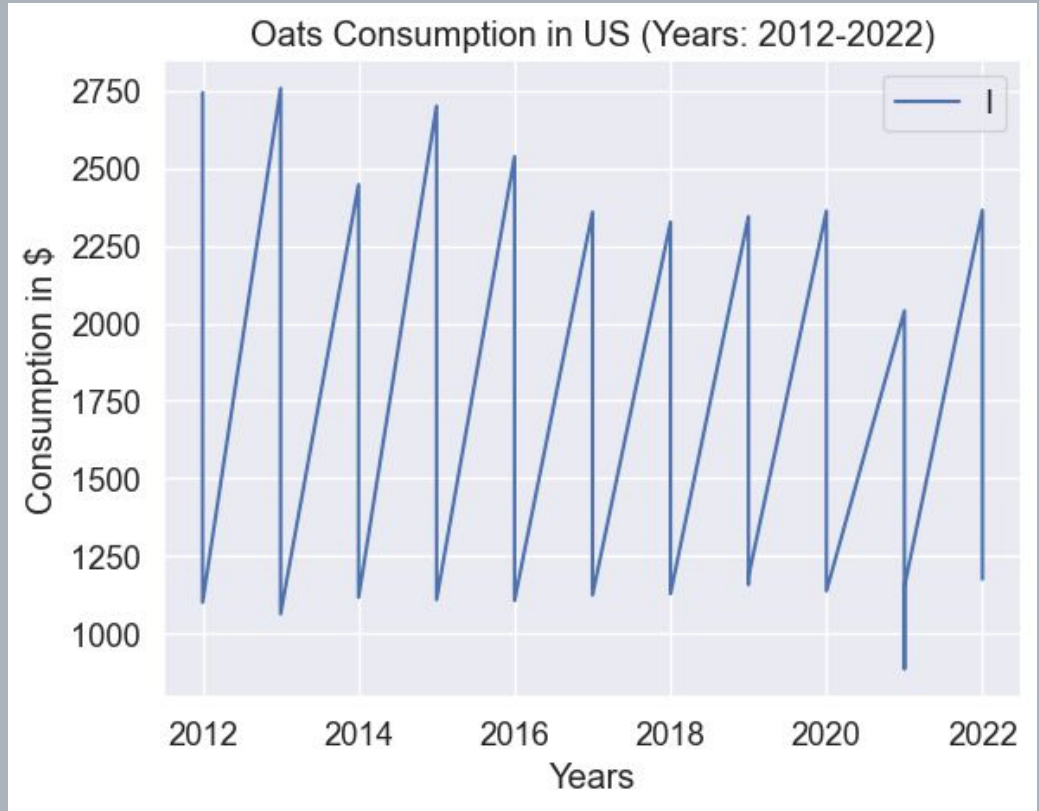
# Corn Import in US

(2012 – 2022)

# Barley Consumption in US

(2012 – 2022)

Rice Consumption in US
(2012 – 2022)

# Oats Consumption in US

(2012 – 2022)

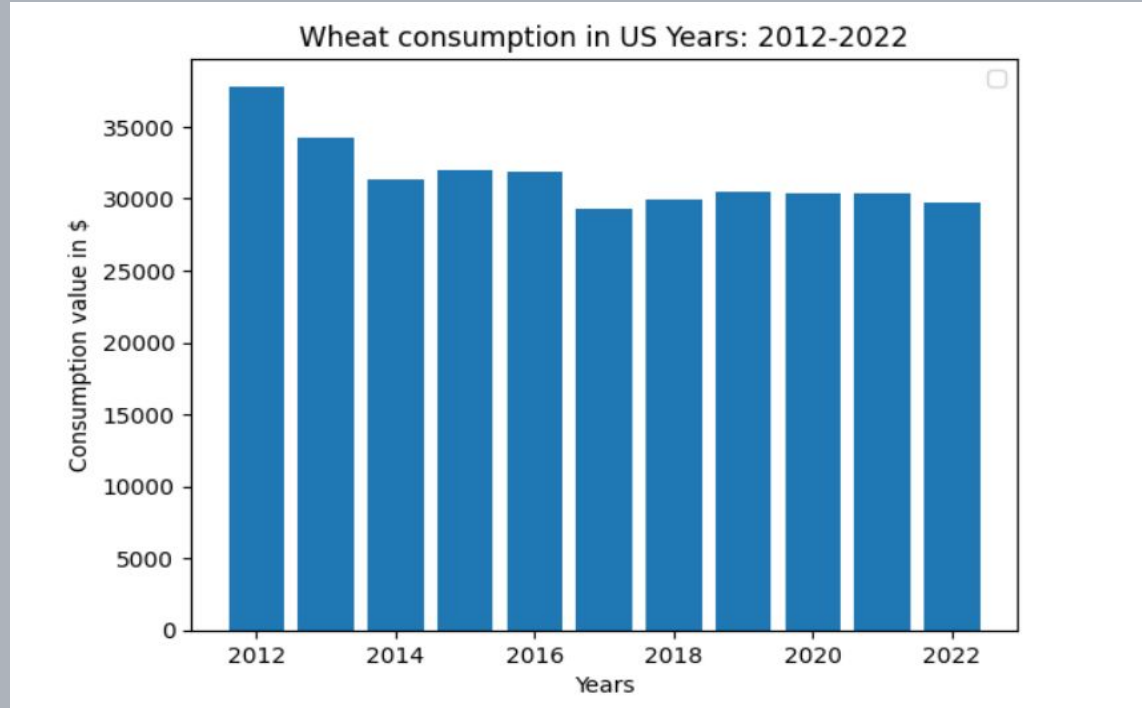

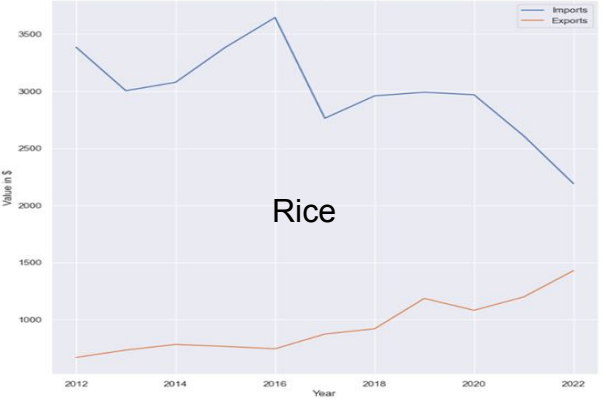Oats Consumption in US (Years: 2012-2022)

# Wheat Consumption in US

(2012 – 2022)
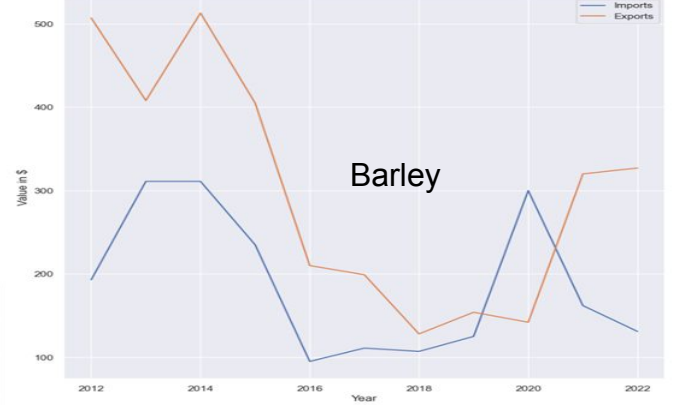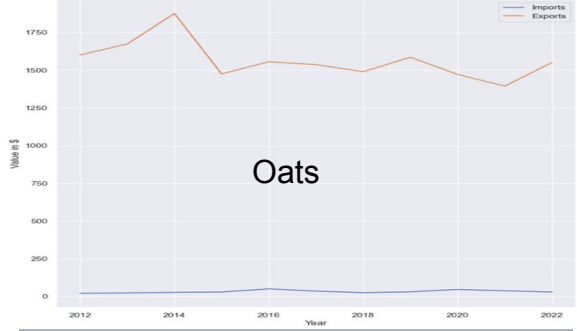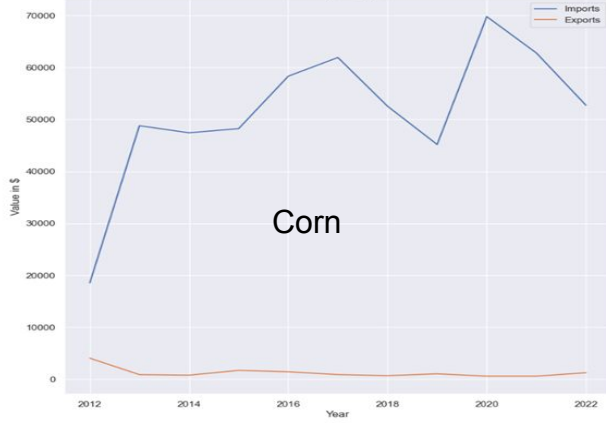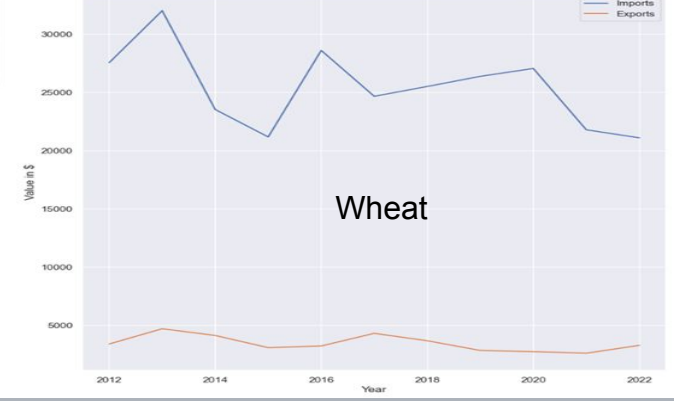
Import vs. Export

Corn - Barley Import Trend
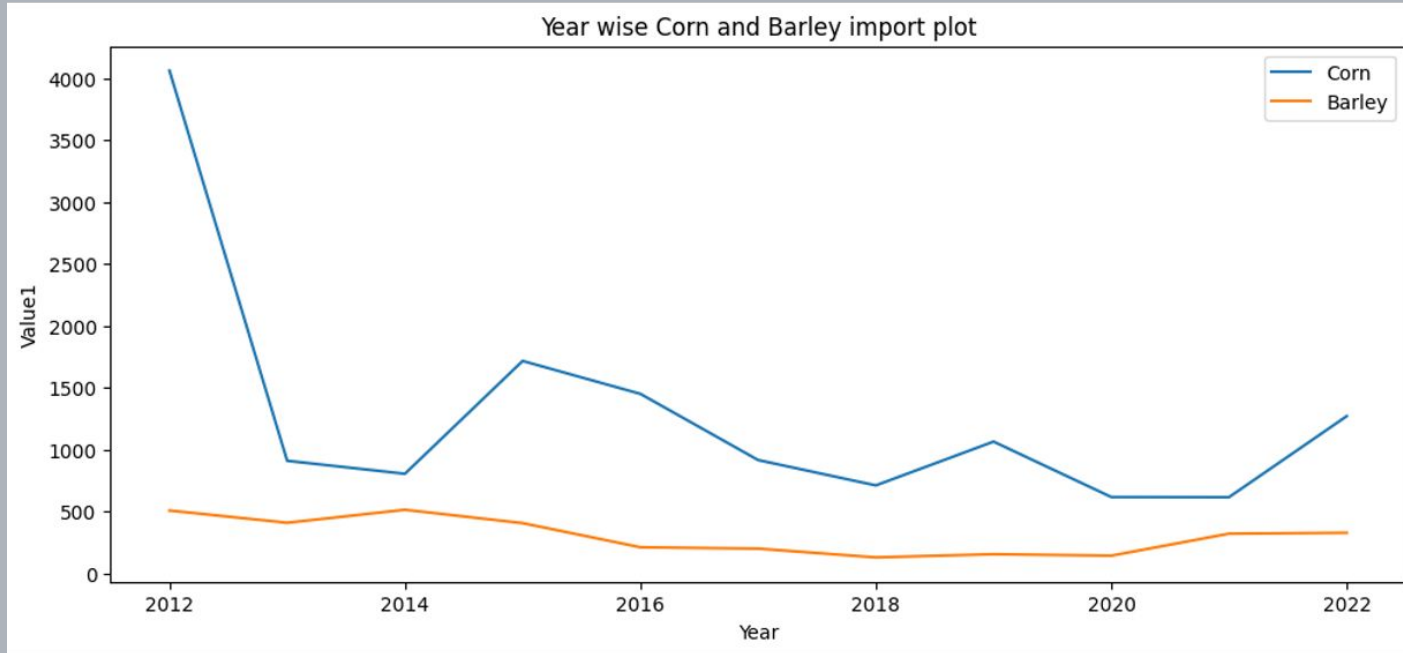
Barley Production Trend

Barley Consumption Trend



Barley.United States.Total Consumption for all Years.
Forecast Data reported on: 1/2021
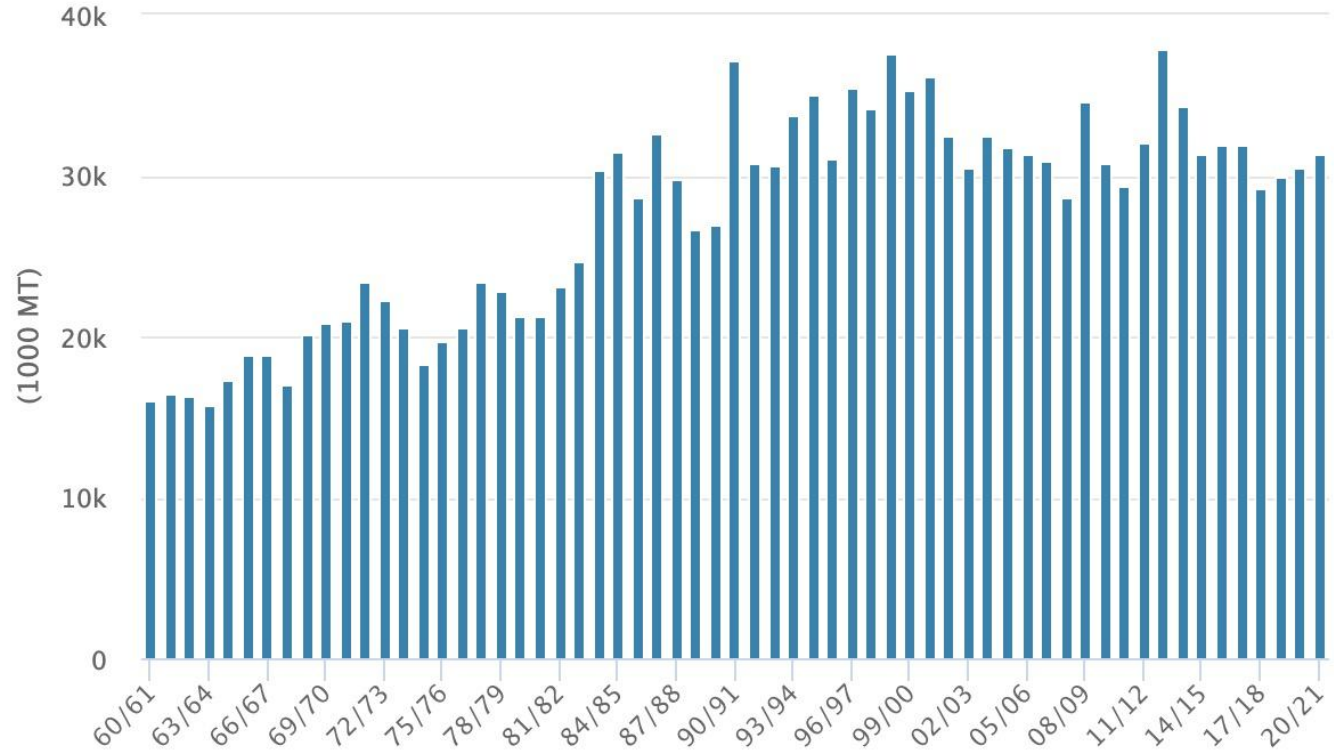
Wheat Consumption Trend
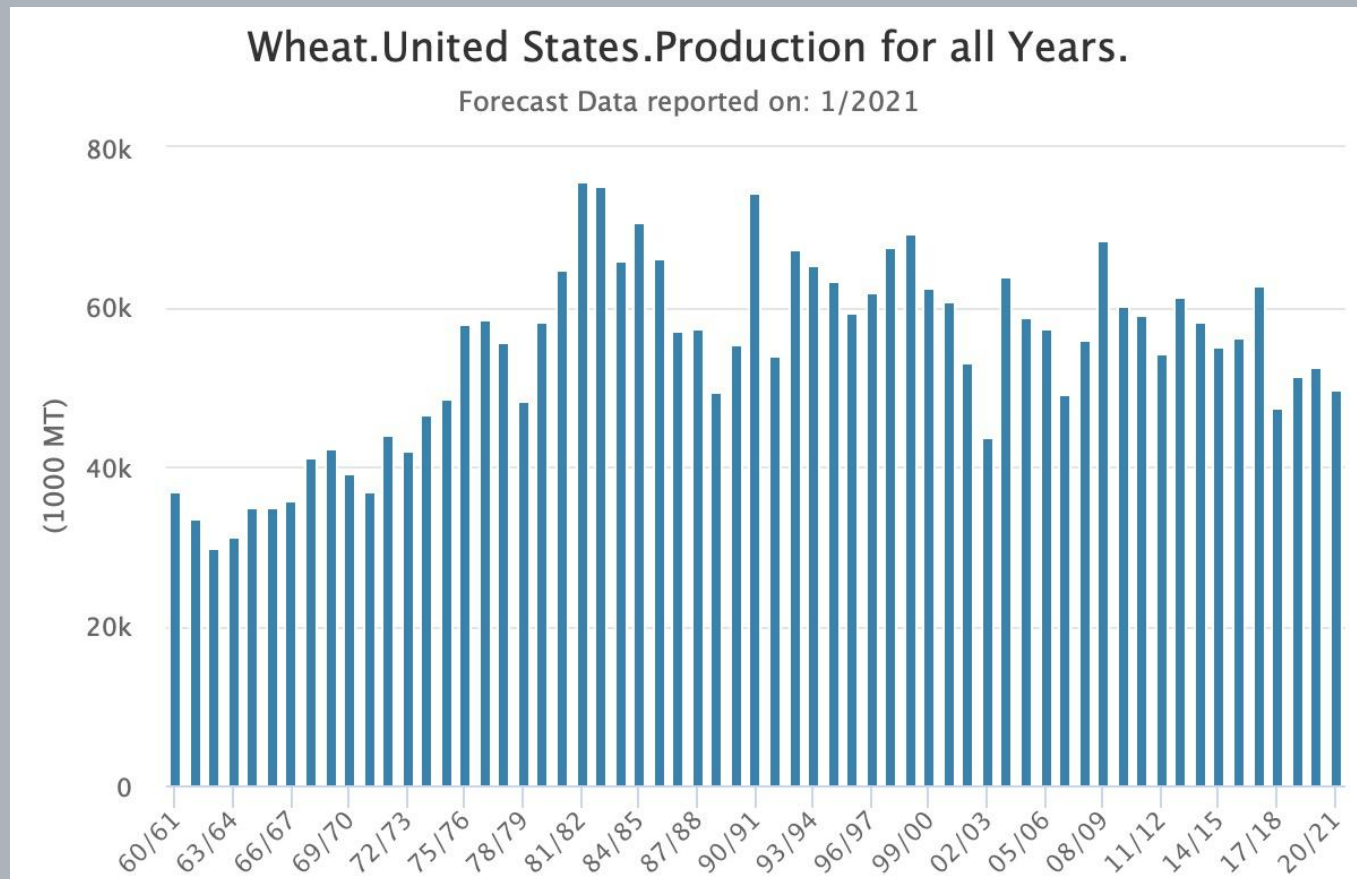
Wheat Production Trend
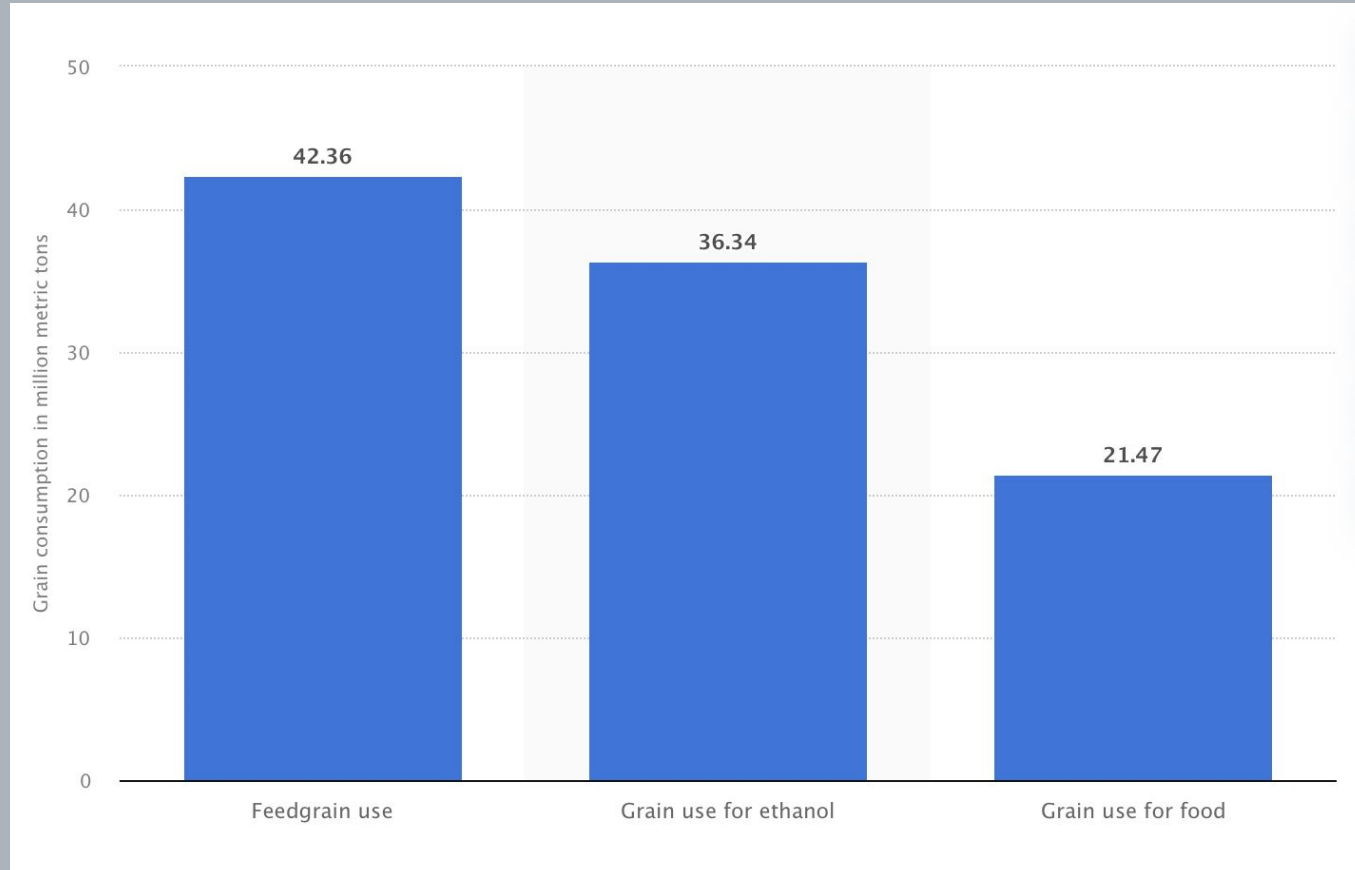


Wheat.United States.Production for all Years.

Forecast Data reported on: 1/2021

US v/s World Grain Productions
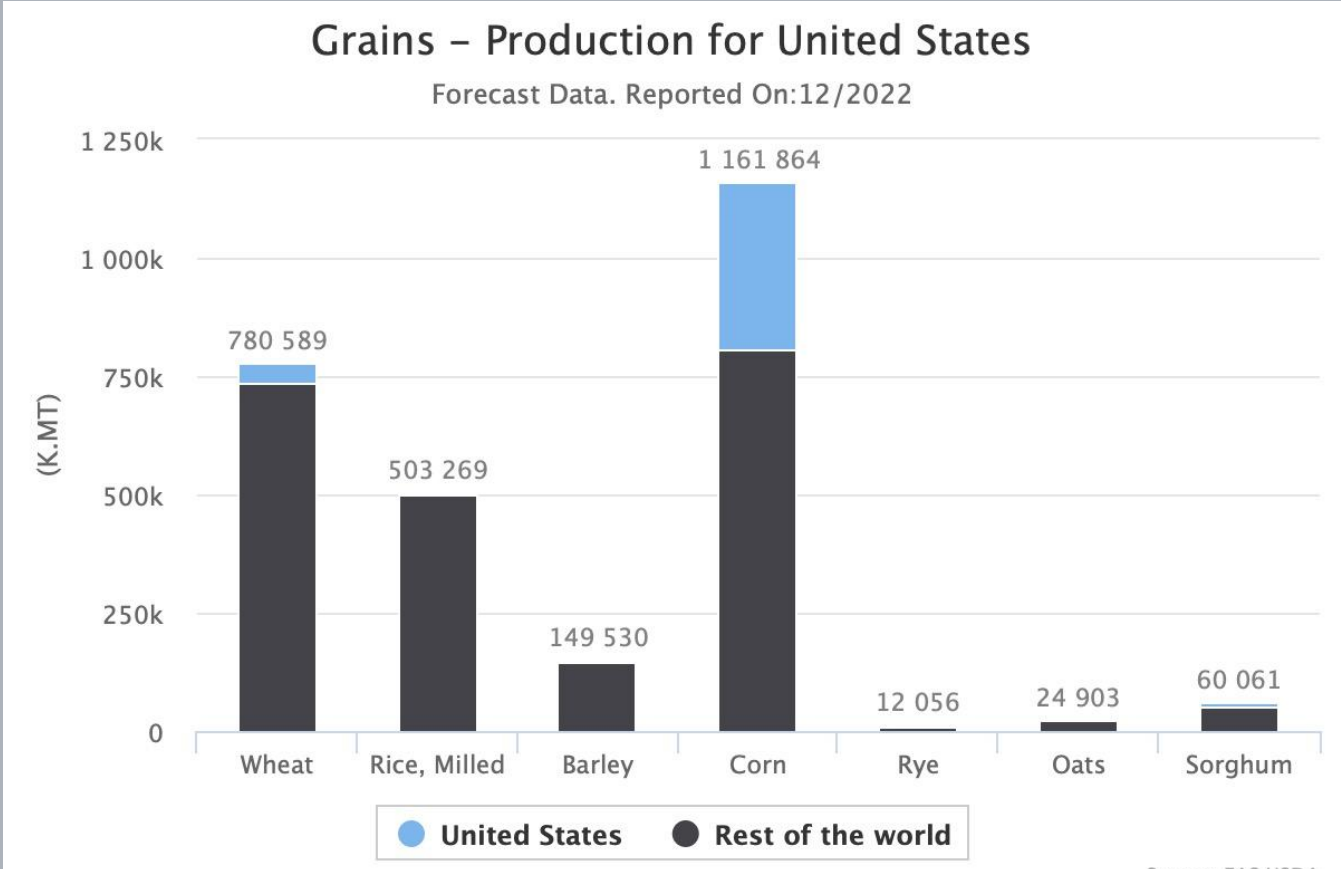
Grain Usage by category in US

# Meat Consumption in US v/s World
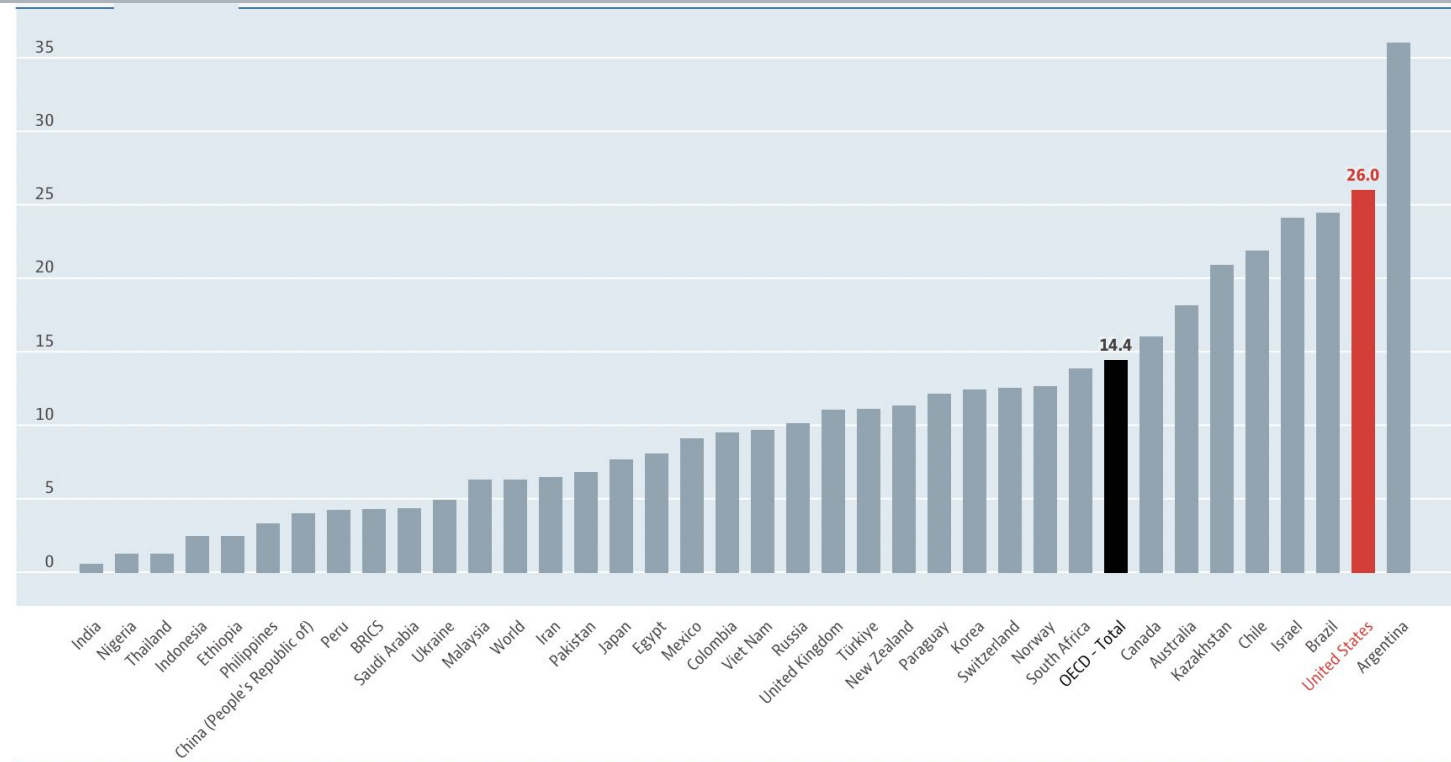
Meat Consumption by US

# Top 10% commodities loss USA
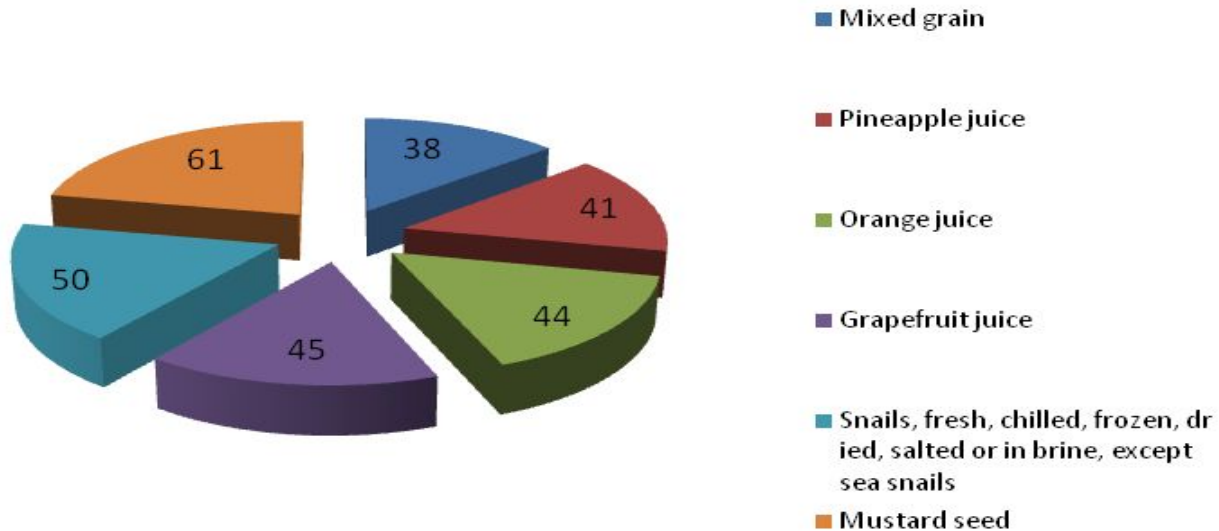
# Top 10% Commodities loss worldwide
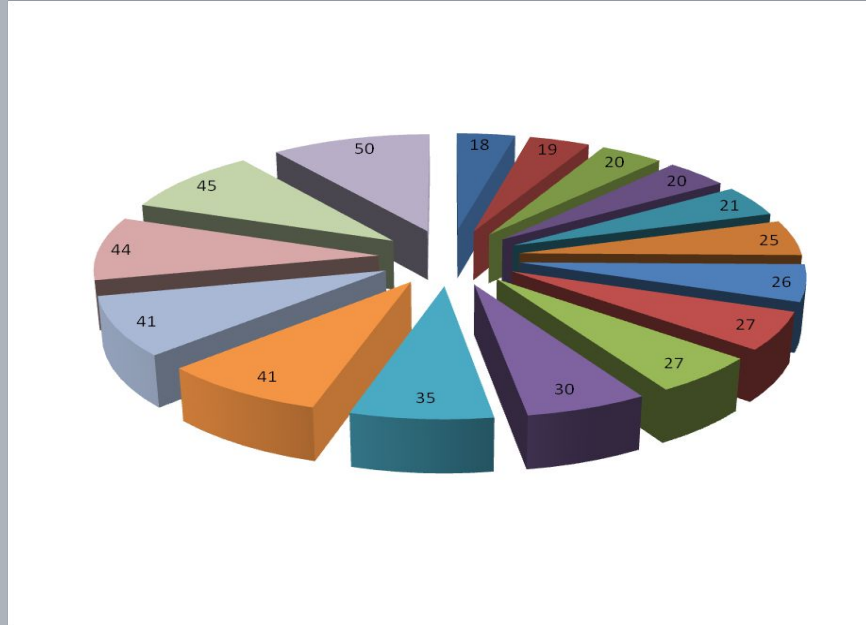


Mixed grain is in top 30% commodities loss worldwide

Legend:
- Green garlic
- Grape juice
- Carrots and turnips
- Swedes, for forage
- Onions and shallots, green
- Cow peas, dry
- Plantains and cooking bananas
- Sweet corn, frozen
- Apple juice
- Broad beans and horse beans, green
- Canned mushrooms
- Meat of pig with the bone, fresh or chilled
- Pineapple juice
- Orange juice
- Grapefruit juice
- Snails, fresh, chilled, frozen, dried, salted or in brine, except sea snails

Pie values: 18, 19, 20, 20, 21, 25, 26, 27, 27, 30, 35, 41, 41, 44, 45, 50

# Total (1000 metric ton) (2012-2022)

| Commodity | Consumption | Export | Import | Production | Loss |
|-----------|-------------|--------|--------|------------|------|
| Barley | 88,006 | 2,081 | 3,313 | 141,945 | 53,939 |
| Oats | 53,956 | 351 | 17,212 | 87,025 | 33,070 |
| Wheat | 694,872 | 279,303 | 37,846 | 1,120,761 | 425,889 |
| Corn | 6,667,156 | 566,175 | 14,132 | 10,753,477 | 4,086,321 |
| Rice | 47,497 | 32,978 | 10,387 | 76,608 | 29,111 |

Grains Loss Trend
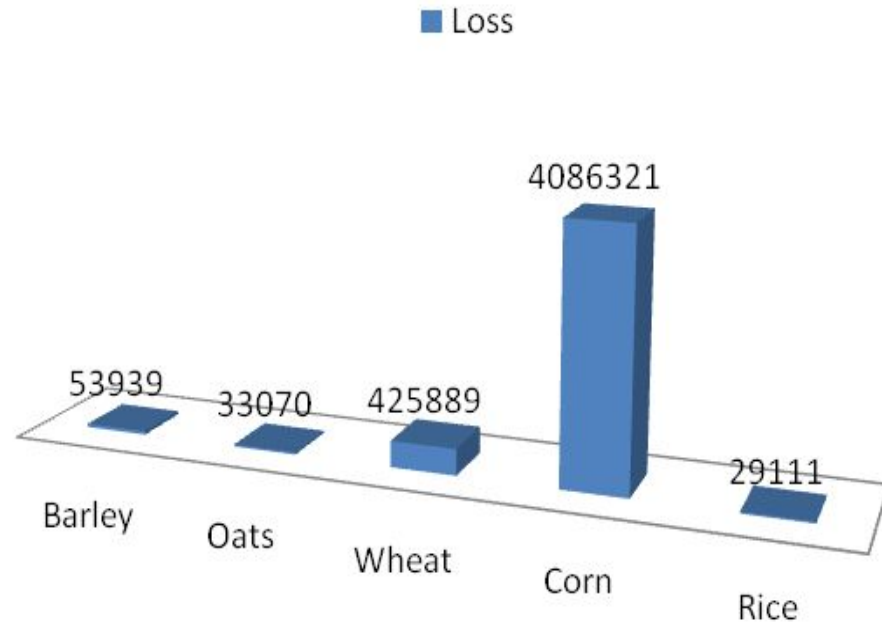
# Conclusion

- The analysis draws the inference that United States is one of the leading producers and consumers of Corn and Barley.
- The consumption of these grains can widely be classified as three -

  - Used as feed grains to feed livestocks/cattles (42.36%)

  - Used to produce Ethanol (36.34%)

  - Consumed by people directly (21.47%)

- Grain loss can be identified the most in Corn and the loss can be mitigated in terms of adopting better measures throughout different crop producing, processing and storing methods.
- The consumption and loss rates can be analyzed in order to limit the grain production to reduce the loss percentages.