



We have
1001 reasons
to invest in sorghum

ISSUES OF SORGHUM CULTIVATION AND UTILIZATION IN HUNGARY



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to invest in sorghum



4th European Sorghum Congress Budapest

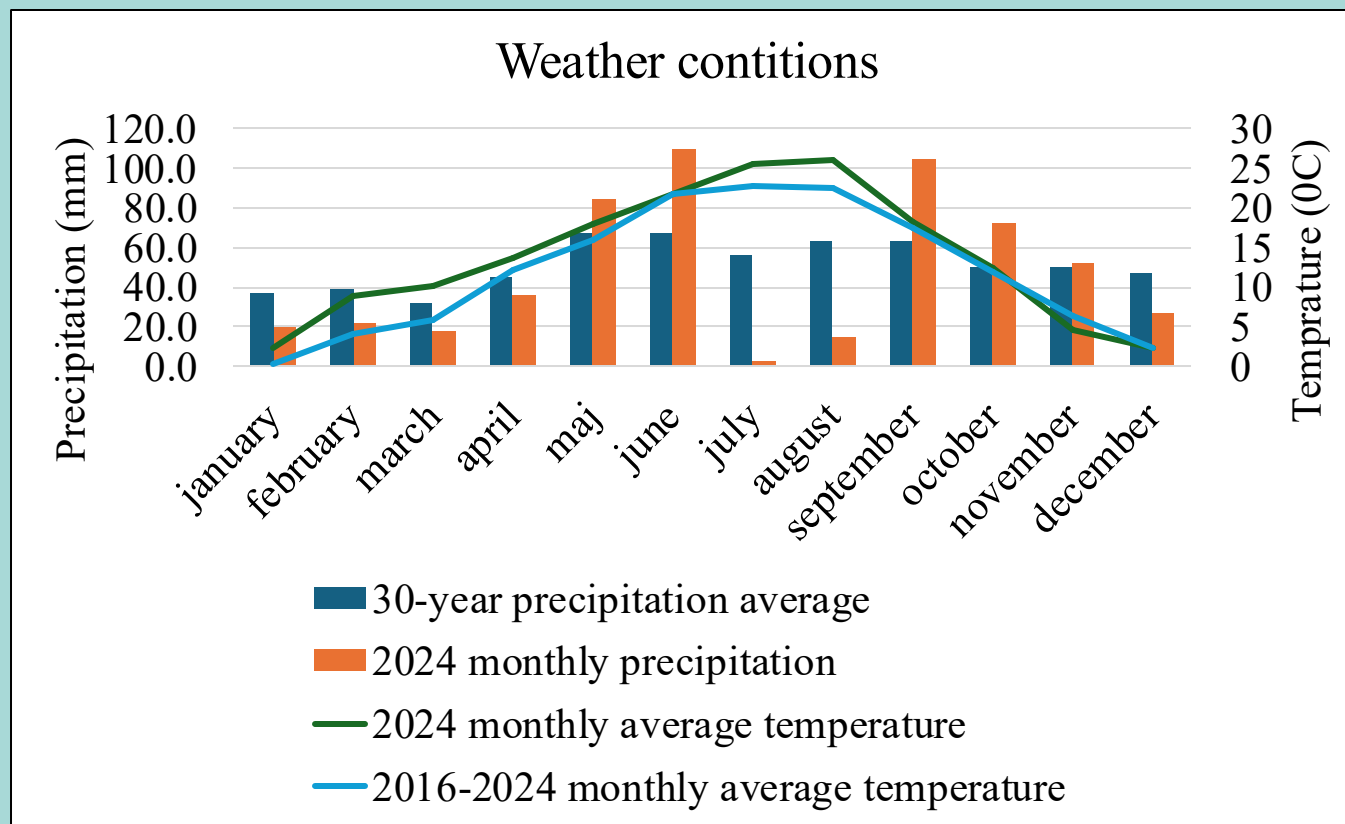
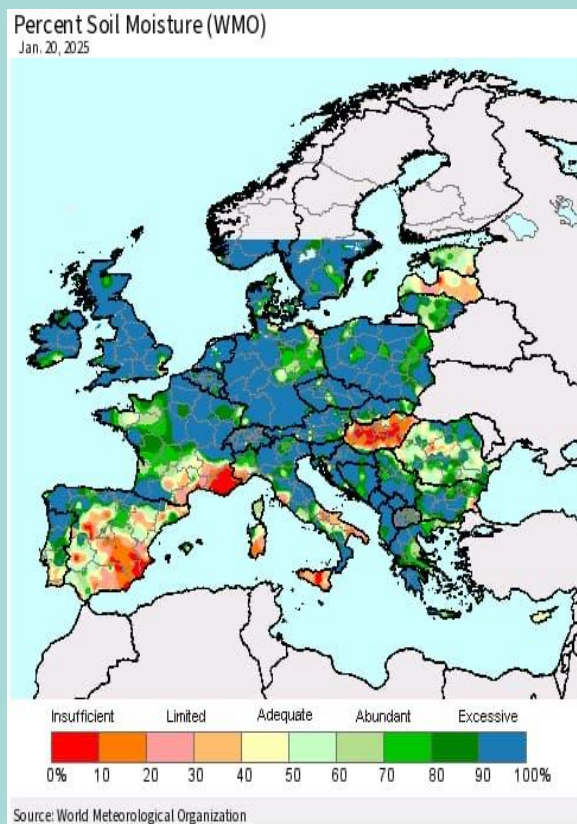
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Chairman of the Board,
Kányai Agricultural Company
Group

Hungary's climate is changing strongly and rapidly.



Extreme weather effects

Deteriorating soil



Plant damages



Sorghum can be a good alternative crop



About sorghum

In general

- Sorghum is well adapted to Hungary's continental climate, particularly in regions prone to drought where maize production is risky. It tolerates poor soils and requires less water than maize.
- Grain sorghum: 5–7 t/ha under favorable conditions; 3–4 t/ha under drought stress.
- Forage sorghum: 40–60 t/ha green mass.
- **Lower input costs + stable yields = better economic results.**

Input costs:

- Sorghum production costs are significantly lower than maize, due to:
 - Lower fertilizer requirements.
 - Reduced pesticide needs.



Lower toxin risk

Threats to sorghum cultivation

Sorghum halepense – Johnsongrass

**Some parts of Hungary are very heavily infested with this weed.
Herbicide-resistant versions appeared**



Macrophomina phaseolina

**In 2024, it caused
huge damage
to our farm.**



Threats to sorghum cultivation - Wild damage

damage caused by deer

The area of our farming is Somogy County, the problem is significant in periods before harvest



Utilization

FEED for animals

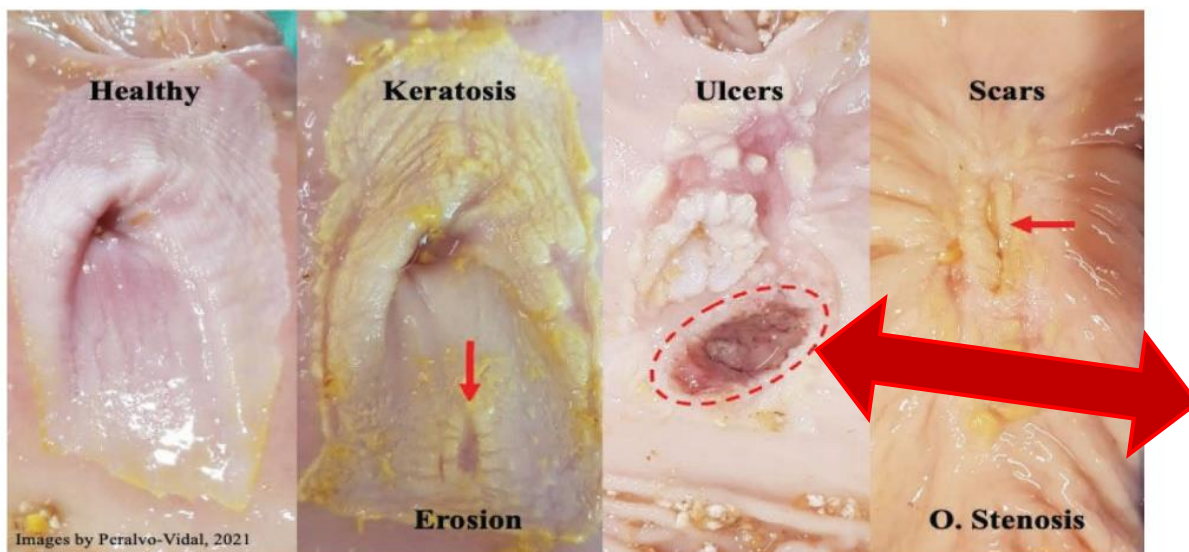


Fig. 1. The stages of development of gastric ulcers
Source: Peralvo-Vidal et al. [54]

- **Widely used in livestock nutrition**
Waterfowl, layers, pigs and cattle,
Corn replacement even in 30-70 %
- **It doesn't cause any disruptions in feed factories. Not even in grinders.**
- **Higher protein content than corn (recipe creation software likes it)**
- **Sorghum has a higher crude fiber and neutral detergent fiber (NDF) content than maize, especially in pigmented varieties.**
- **Significantly reduced the incidence of gastric ulcers in pigs**
- **Forage and silage sorghum provide high biomass for ruminants.**

Utilization

FOOD for humans

- Its gluten-free property, antioxidant content, and resistance to drought make sorghum an important grain for health-conscious diets and food security - rich in antioxidants and dietary fiber.
- **Flour and baked products** – Ground sorghum flour is used in gluten-free breads, cakes, cookies, and pancakes.
- **Fermented foods and beverages** – Sorghum is used in traditional fermented foods, alcoholic beverages, and non-alcoholic drinks in many regions.
- **Nutritional supplements** – Sorghum can be incorporated into composite flours or protein-rich products to enhance dietary quality.



Among others

Potentially anti-cancer effect

Utilization

benefit for humans

- In various studies, sorghum has shown strong anti-cancer potential. This is because it contains antioxidant compounds that eliminate free radicals and protect the body's cells.
- It contains polyphenols called "proanthocyanidins", which themselves consist of luteolinidin and apigeninidin. These substances are able to inhibit the proliferation of cancer cells and induce their apoptosis (programmed cell death).
- It also has an immunomodulatory effect: it increases the activity of natural killer (NK) cells and activates macrophages.

Source: <https://www.darwin-nutrition.fr/super-aliments/sorgho/>

- This study by the United States Department of Agriculture, conducted directly in the laboratory, shows the anti-cancer potential of sorghum.

Source: *High-Polyphenol Sorghum Bran Extract Inhibits Cancer Cell Growth Through ROS Induction, Cell Cycle Arrest, and Apoptosis* (PMID: 29733262 DOI: 10.1089/jmf.2018.0008)

Preservation of quality during storage



Cool storage

Below 15 degrees Celsius:

- No insect damage
- No additional toxin damage
- No pesticide use (gasification)



Continuous control during storage

- Purity
- Moisture
- Toxin content
- Internal content (at least protein)

In case of deviation, separate storage

Request to sorghum plant breeding specialists



Increase the resistance against fungal diseases

- *Macropfomina phaseolina*
- *Aspergillus* spp.
- *Fusarium* spp.
- Anthracnose (*Colletotricum* s.)



Increasing digestibility reducing tannin content



Johnsongrass (*Sorghum Halepense*) seedless Sorghum seeds



Thank you for your attention!

more informations:

www.drgz.net