

MED-Amin

Réseau méditerranéen d'information sur les marchés agricoles
Mediterranean Agricultural Market Information Network

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Edito

On October 25th, 2024, the 12th Ministerial Meeting of CIHEAM was held in Rabat, Morocco, highlighting the Center's role in food sovereignty in the Mediterranean and in the development of sustainable agri-food systems through training, research, and the continuation of a high-level Mediterranean dialogue. This meeting followed several days of conferences aimed, in particular, at establishing a regional Mediterranean roadmap for the 4 per 1000 initiative, focused on enhancing soil health and promoting organic carbon sequestration through agroecology.

During the CIHEAM Ministerial Meeting, several delegations stressed the importance of the MED-Amin network in strengthening national early warning and response capacities in the field of food security, by providing reliable information and supporting thorough strategic dialogue on agrifood sustainability, food security and crisis management¹.

In this context, we highlight in this newsletter the work of the European Commission's Joint Research Centre (EC-JRC), a key partner of the MED-Amin network, in the areas of remote sensing and early warning systems.

The use of remote sensing was identified as an important lever by the MED-Amin strategic resource persons during their first meeting in Paris at the end of 2023. It could improve the quality, accuracy, and large-scale coverage

of information needed for an early warning system. It was noted that this may involve strengthening national capacities in this field.

Therefore, the 10th Annual Meeting of the MED-Amin network in May 2024 featured a session on using remote sensing tools to enhance early warning systems for food security, aimed at decision-makers and policy analysts. The EC-JRC contributed showcasing three main in-house services: the MARS crop monitoring and yield forecasting system (MCYFS) from the JRC D.5 AGRI4CAST unit, the ASAP system, an early warning system developed by the JRC D.5 FoodSec unit, and the Copernicus Emergency Management Service. The technical characteristics of these systems are detailed in a focus article in this newsletter (pages 2-3).

Furthermore, during the MED-Amin 10th Annual Meeting, in May 2024, it was decided to proceed with a joint scientific publication describing MED-Amin's experience with MARS over the past 10 years and the achieved milestones. This publication will be prepared in 2025.

While the MED-Amin network is already working closely with the AGRI4CAST unit for the production of early forecasting bulletins, we encourage member countries to

follow the publications and indicators produced by the JRC teams. MED-Amin could potentially assist in developing collaborations with them. These teams actively seek collaborations to test and improve crop monitoring frameworks and are open to share their expertise and data resources. For example, tests are being conducted to implement regional yield forecasting systems, and solutions for assimilating satellite data are being tested to evaluate their impact on the yield predictability of simulation models. Additionally, the FoodSec unit (ASAP system) is testing innovative machine learning solutions for crop monitoring at a regional scale and is eager to collaborate with partners interested in serving as test sites.

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¹ [12th CIHEAM MINISTERIAL DECLARATION](#)

EGYPT

Egypt to invest \$153 million in Suez Canal grain storage and processing infrastructure

(Miller Magazine, 24/10)

The Suez Canal Economic Zone and the Egyptian Holding Company for Silos and Storage are embarking on the development of a comprehensive grain handling, processing, and storage facility, with an initial investment of \$153 million, as reported by Al Mal News. Set to be completed in two phases, the complex will enhance Egypt's grain supply capabilities.

TÜRKİYE

Türkiye will maintain a 15% quota on wheat imports

(Elevatorist.com, 21/10)

Türkiye's wheat import quota will remain at 15% until December 31, 2024. This was announced by Ahmet Güldal, CEO of TMO (Turkish Grain Board). Flour producers must purchase 85% of the wheat they need from TMO for flour production, leaving the option to import only 15% under the domestic processing regime.

TUNISIE

Les prix des céréales pour la saison 2024/25 fixés

(Adapté de lapresse.tn, 10/11)

Le décret portant sur la fixation des prix des céréales et sur les modalités de leur paiement, stockage et transfert pour la saison agricole 2024/25, a été publié au Journal officiel de la République tunisienne. Il vise à assurer une gestion optimale des récoltes et à soutenir la filière céréalière dans un contexte économique difficile.

FRANCE

Sélection variétale

(adapté de Réussir, 30/10)

En septembre, l'INRAe a lancé le projet européen Pro-Wild. Il va étudier le potentiel d'espèces sauvages de blé, de betterave et de colza, afin de créer des variétés plus résilientes au changement climatique.

Cheng, S., Feng, C., Wingen, L.U. et al. Harnessing landrace diversity empowers wheat breeding. Nature 632, 823–831 (2024).

Harnessing genetic diversity in major staple crops through the development of new breeding capabilities is essential to ensure food security. Here the authors examined the genetic and phenotypic diversity of the A. E. Watkins landrace collection of bread wheat (*Triticum aestivum*), a major global cereal, by whole-genome re-sequencing of 827 Watkins landraces and 208 modern cultivars and in-depth field evaluation spanning a decade. The authors found that modern cultivars

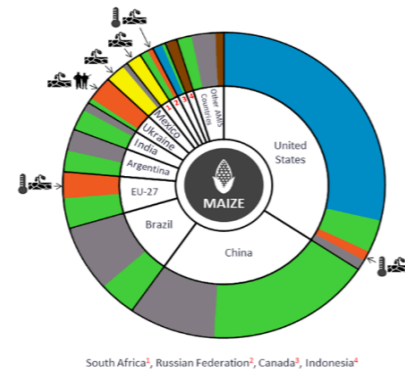
are derived from two of the seven ancestral groups of wheat and maintain very long-range haplotype integrity. The remaining five groups represent untapped genetic sources, providing access to landrace-specific alleles and haplotypes for breeding. Linkage disequilibrium-based haplotypes and association genetics analyses link Watkins genomes to the thousands of identified high-resolution quantitative trait loci and significant marker-trait associations. Using these structured germplasm, genotyping and informatics resources, the authors revealed many Watkins-unique beneficial

EUROPE

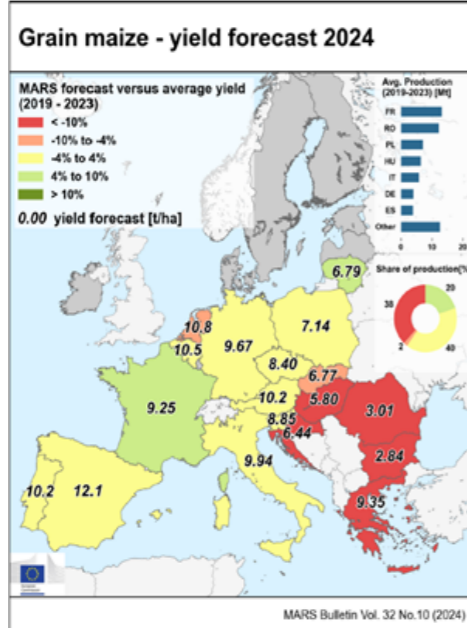
Difficult start to autumn

(Joint Research Centre, 28/10)

According to the [October edition of the JRC MARS Bulletin](#) - crop monitoring in Europe, intense rainfall negatively impacted the ripening and harvesting of summer crops, as well as the sowing of winter cereals for the new season.



Overview of world maize conditions as of 28 October 2024 (AMIS Market Monitor n°123)



Overview of grain maize yield forecast for Europe as of 28 October 2024 (JRC MARS Bulletin Vol.32 N°10)

Tools for Agricultural Monitoring and Early Warning by the JRC

Giacinto Manfron, Scientific Officer at EC-JRC

Following the editorial, this article aims at presenting the key technical features of selected remote sensing and early warning operative services developed by the JRC.

JRC D.5 AGRI4CAST unit

The [MARS](#) (Monitoring Agricultural Resources) crop monitoring and yield forecasting system from the JRC D.5 AGRI4CAST unit is operational since 1992 and serves as a **Decision Support System (DSS)** providing independent, timely and accurate **crop yield forecasts** for the European Commission and its citizens. Since its inception, its primary products have been disseminated through scientific bulletins.

This model- and data- driven DSS integrates near-real-time weather observations, satellite data and crop model results. This information is used for qualitative interpretation of crop yield prospects and is integrated into quantitative analyses within the statistical framework used for crop yield forecasting.

Daily weather data from nearly 4 000 stations across Europe and its neighbouring regions is verified, harmonised and interpolated onto a 10x10 km grid in near-real time: as of now, observations are available up to the day before yesterday. Additionally, the system incorporates model data for weather forecasts, which also serves as a crucial input for crop growth models.

Beside meteorological data, **satellite observations** assess crop conditions, offering independent and real-time insights into canopy responses across Europe and can function as a self-standing system, or assimilated into crop growth models. Satellite images and satellite-derived biophysical indicators are used with a temporal resolution of 10 days and spatial resolutions ranging from 250 to 1.000 meters. The primary sensors employed include MODIS Terra and Aqua, VIIRS, METOP-AVHRR, ASCAT, Sentinel-3 OLCI and Sentinel-1.

At the core of the **crop growth model infrastructure** (the BIOMA crop simulation framework) is the generic WOFOST model.

Harnessing landrace diversity empowers wheat breeding

haplotypes that can confer superior traits in modern wheat. Furthermore, the authors assessed the phenotypic effects of 44,338 Watkins-unique haplotypes, introgressed from 143 prioritized quantitative trait loci in the context of modern cultivars, bridging the gap between landrace diversity and current breeding. This study establishes a framework for systematically utilizing genetic diversity in crop improvement to achieve sustainable food security.

➔ Read the [article here](#)

[Continuation of the article page 2] Daily weather data from the meteorological infrastructure serve as input, alongside crop-specific parameter sets related to crop calendars and soil types for each relevant grid cell. Model calculations are conducted with a daily time step, producing outputs that include crop state variables such as phenological development, total above-ground biomass, leaf area index, soil moisture content, and biomass of storage organs (e.g., grains for cereals, tubers for potatoes, and olives for olive trees).

This infrastructure is managed by a team of 20 specialists, including managers, analysts, and consultants, along with external data providers. Together, this team ensures the AGRI4CAST DSS remains operational, and works to enhance it from both scientific and technological perspectives.

ASAP system

The [ASAP](#) (Anomaly hot Spots of Agricultural Production) system is a global online **early warning system** developed by the **JRC D.5 FoodSec unit** to identify **anomalies** in agricultural and rangeland production. It focuses on countries with food insecurity (81 countries), with in-depth work on the Maghreb region for instance. This DSS takes advantage from satellite and agro-meteorological data and consists of three main components:

- a platform for hotspot analysis at the country level for decision-makers and policy analysts;
- a warning explorer for automated regional analyses aimed at agricultural analysts;
- a high-resolution viewer that leverages Copernicus Sentinel imagery for field-level data analysis by remote sensing experts.

The information from ASAP is used by international organisations for their reports, such as the FAO

ITALIE

Durum wheat sufficiency below 50%

(Agrotipos, 25/10)

The decline in durum wheat production in Italy in recent years is significant, which forces the country to turn to imports to meet its needs. Mr. Massimiliano Giansanti, president of the European organizations Copa-Cogeca and Confagricoltura, speaking at the World Durum and Pasta Forum 2024, emphasized that "in the country in 2012 the self-sufficiency rate of durum wheat was 78 %, in 2023 it fell to 56% and in 2024 it will probably close below 50%, affected by the weather conditions that negatively affected acre yields. But the producer price also fell due to the increased imports of durum from Türkiye".

Predicting wheat yield gap and its determinants combining remote sensing, machine learning, and survey approaches

Devkota K.P., Bouasria A., Devkota M., Nangia V. (2024). Predicting wheat yield gap and its determinants combining remote sensing, machine learning, and survey approaches in rainfed Mediterranean regions of Morocco. *European Journal of Agronomy*, 01/08/2024, vol. 158, p. 127195.

Wheat is essential to Morocco's food security, economic stability, and farming livelihoods. Evaluating vegetation indices as yield predictors, along with understanding potential yield, yield gaps, and their key drivers at regional and national levels, is critical to strengthening food security under changing climate conditions. Identifying yield gaps and their causes during droughts and favorable

(Global Report on Food Crises) or GEOGLAM (Crop Monitor for Early Warning). The ASAP system is also used to assess the impact of extreme events, such as floods, and identify their extent.

Copernicus Emergency Management Service

Lastly, the **Copernicus Emergency Management Service (CEMS)** monitors natural hazards and human-made disasters (droughts, fires, floods, etc.) across Europe and globally. By utilizing satellite data, in situ observations, models, and aerial data, CEMS supports emergency response and disaster risk management, implemented by the European Commission's Joint Research Centre.

CEMS includes the **European Drought Observatory (EDO)** and the **Global Drought Observatory (GDO)**, which uses the **Combined Drought Indicator (CDI)** to integrates precipitation anomalies (from weather stations), soil moisture (from hydrological models), and vegetation and crop conditions (from remote sensing) into a single metric of drought risk. Data on droughts and heatwaves is available in near real time through a dedicated web portal. The Global Drought Observatory is supplemented with analysis reports and publications. The system also provides information on potential conditions for the next 3-6 months.

The products and indicators used are continuously evolving to include more data and metrics, and to improve responsiveness and provide more robust alerts. The system is transitioning towards a risk-centric observatory, adopting a multisectoral risk approach. It will be based on a variety of tools and knowledge, including expert insights, models characterizing droughts and associated risks across five different sectors, as well as artificial intelligence (to provide a probability of risks occurrence), classical statistical methods, and climate projections.

RUSSIA

Grain exporters to supply directly 13 countries, bypassing foreign traders

(OilWorld.RU, 21/10)

This new strategy aims to curb sales at low prices and eliminate the practice of intermediaries reselling Russian grain. According to the Union of Grain Exporters' director general, Eduard Zernin, starting October 11, supplies will be delivered directly to government institutions and sovereign buyers in Egypt, Tunisia, Algeria, Morocco, Jordan, Saudi Arabia, Bangladesh, Qatar, Kuwait, South Korea, Pakistan, India, and Iraq.

BRICS

BRICS leaders tout joint finance, trade projects

(Reuters, 23/10)

Leaders of the nations in the BRICS grouping, which accounts for 37% of global economic output, predicted its influence would grow as they met in Russia on Tuesday, outlining common projects ranging from a grain exchange to a cross-border payments system.

WORLD

Global barley production continues to decline

(Noticias Agropecuarias, 25/10)

The new reduction comes from Canada, Australia, and Russia, where climatic conditions have negatively impacted the crop. The USDA again reduced the global production estimate for the new 2024/25 campaign to 142.9 Mt in its latest report (down from the 144.3 Mt). The RMI Analytics estimate is 141.5 Mt in its latest report. Both values are below the harvest of the previous campaign and more than 10 million below the 2022/23 campaign.

SCOOPS

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vegetation indices were particularly effective in predicting wheat yields. Such predictive methodologies are crucial for policymakers to plan and reduce risks. Key yield factors include soil moisture, rainfall during the growing period, evapotranspiration, and soil texture and carbon content. To minimize drought risks and maximize benefits in variable rainfall conditions, it is essential to implement pre-season drought forecasts, adjust seeding dates based on soil moisture, adopt technologies that enhance soil moisture retention, and use climate-adapted farming practices in the semi-arid and arid rainfed regions.

➔ Read the [article here](#)

REPORT: Agriculture and conservation

UCN (2024). *Agriculture and conservation: Living nature in a globalised world*. IUCN Flagship Report Series No. 2. Gland, Switzerland: IUCN.

A new flagship report from the International Union for Conservation of Nature - on the interplay between agriculture and conservation - argues that better designed and targeted policies could benefit both biodiversity and agriculture and should be considered and implemented by countries across the world.

In 2021, IUCN launched the IUCN Flagship Report Series, to help demonstrate the importance of conserving nature for human well-being and all life on Earth. This report, the second in the series, focuses on agriculture and nature. The interactions, synergies, and tradeoffs between the two sit at the heart of the 2030 Agenda for Sustainable Development, which calls for ending hunger and ensuring food security while also mandating the protection and restoration of nature. Whether the two can be achieved simultaneously, and if so how, are crucial questions for humanity and our planet. IUCN therefore explores the positive and negative relationships between agriculture and nature conservation and mobilises new modelling approaches to examine both imperatives within a range of realistic policies.

➔ [Full report](#)



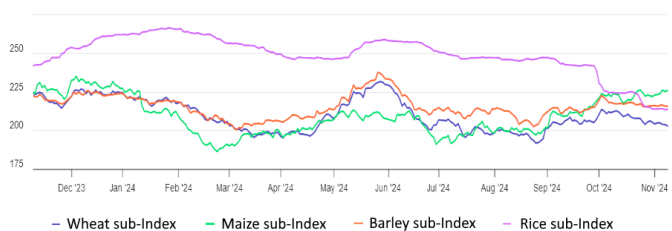
Trends on Global Markets

	Global Price Index ¹ (08/11/2024)		Supply & Demand in Nov. 2024 ¹	
			From previous forecast (M/M)	From previous season (Y/Y)
Blé/Wheat	203	↘	↔	↔
Maïs/Maize	226	↗	▼	↔
Riz/Rice	213	↔	↔	▲
Orge/Barley	216	↘	n/a	n/a

¹: Monthly average in USD - base 100=year 2000 - ↗↘↔ vs last month (▲ : Easing ; ▼ : Tightening ; ↔ : Neutral, n/a : not applicable)

IGC Grains and Oilseeds Index (GOI)

Basis January 2000 = 100



Sources : AMIS Outlook - <http://www.amis-outlook.org> and International Grains Council

Events

02-03

12

2024

17

12

2024

Agro&Food Security Forum 2024 (Warsaw, Poland)

This event will bring together over 300 delegates from more than 25 countries, including top executives from leading agricultural, logistics, and trading companies. It will address the most pressing issues in the agro sector, processing, trade, and logistics.

➔ Visit the [webpage](#)

MedClimat 2024 (Paris, France)

La Fondation FARM, dans le cadre du projet AACC-Med, le CIHEAM et l'iReMMO Alumni organisent cet événement multi-acteurs et multi-rives qui abordera les enjeux cruciaux auxquels font face les systèmes alimentaires méditerranéens pour s'adapter au changement climatique, avec l'ensemble des acteurs du monde agricole et alimentaire : agriculteurs, entreprises, politiques, chercheurs, financeurs, acteurs de la société civile du bassin méditerranéen, consommateurs, etc.

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