



CASHEWS

Short communication



Listening to users: What agricultural Early Warning Systems need next

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Context

Agricultural Early Warning Systems (EWS) play a crucial role in helping governments, humanitarian organizations, analysts and regional bodies monitor crop conditions, anticipate emerging risks and prepare timely responses. As part of the [ESA CASHEWS project](#), we spoke with users of several major global and regional EWS and agricultural monitoring tools to understand how these systems are used in practice, which user needs they already meet, and where users see room for improvement.

Who was interviewed?

The CASHEWS team conducted 24 semi-structured interviews with at least two users of the following systems: ASAP, CropWatch, FEWS NET, GIEWS/ASIS, NASA Harvest GLAM, MARS and the WFP Seasonal Monitor. The interviewees represented a broad range of user perspectives, i.e. regional climate centres, humanitarian organizations, government agencies, agricultural ministries, research institutes, market analysts and food-security specialists:

System/tool	Examples of users interviewed	Main user perspective represented
ASAP	IGAD/ICPAC, UN OCHA, academic user	Regional drought and agriculture monitoring, humanitarian analysis, research
CropWatch	NASRDA Nigeria, Ministry of Agriculture Thailand, Ministry of Agriculture Cambodia, Hubei University	National crop monitoring, crop production assessment, capacity building
FEWS NET	IPC Global Support Unit, SADC disaster risk reduction, African Risk Capacity, American Institutes for Research	Food-security analysis, disaster risk financing, regional preparedness
GIEWS / ASIS	FAO users, REACH/IMPACT South Sudan, UNCCD	Crop-stress monitoring, food-security analysis, drought and land degradation contexts
NASA Harvest GLAM	CONAB Brazil, ICPAC, FAO	Vegetation monitoring, national crop monitoring, agricultural market analysis
MARS	Stratégie Grains/Tallage, Cargill, DG-AGRI	European crop monitoring, yield forecasting, policy and market transparency
WFP Seasonal Monitor	WFP users	Anticipatory action, crisis preparedness, support to country offices

What did users tell us?

Across the interviews, users confirmed that existing Early Warning Systems are already valuable and widely used. They support crop monitoring, food-security analysis, market assessment, humanitarian preparedness, policy support and anticipatory action. Users particularly value regular updates, maps, anomaly indicators, hotspot summaries, bulletins and expert interpretation. Many also use several systems side by side, as the different systems cover slightly different aspects, serve different user groups and therefore complement each other in terms of type and format of information provided.

At the same time, users pointed to a number of recurring needs. The first is for information that is **more directly actionable**. Users do not only need to know that rainfall, vegetation or soil moisture conditions are unusual; they need to understand what this means for crops, production, food security, markets or response planning. This is especially important for humanitarian and food-security users who need to prioritize further analysis, prepare interventions or support anticipatory action before a crisis fully develops. **Combining** agroclimatic information with market, livelihood and contextual

information was also marked as a priority by some users, as crop conditions alone do not always explain the eventual food-security impact.

A second recurring need is for **more localized and crop-specific information**. Users working in fragmented agricultural landscapes, smallholder systems, rice-growing areas, agro-pastoral zones or river basins often find that global or administrative-level products provide a useful overview, but are not always detailed enough for local decisions. Several interviewees referred to limitations linked to coarse spatial resolution, static land-use masks, mixed pixels, or insufficient representation of crop calendars, crop types, sowing dates and management practices. The same rainfall or vegetation anomaly can have very different implications depending on what crop is grown and at which stage of the season it occurs.

A third need concerns improvements on data **access, usability and interoperability**. Technical users want to integrate early warning outputs into their own dashboards, workflows and analytical pipelines. For this, they need clear APIs, stable access routes, downloadable data, better documentation and formats that are easier to process. Users already consulting multiple systems highlighted practical barriers such as differences in baselines, indicators, spatial units, data formats metadata standards and update cycles. Non-technical users, in contrast, need concise explanations, intuitive summaries and clearer guidance on how to interpret indicators. These comments show that usability is not only about how a platform looks, but also about how easily users can integrate its outputs into operational systems.

Users also emphasized the **importance of forecasting and validation/trust**. In-season monitoring is useful, but many decisions need to be taken before impacts are fully visible. Interviewees therefore highlighted the value of pre-season alerts, early-season warnings, longer lead-time information and, where possible, explicit yield or production forecasts. However, users also stressed that forecasts and monitoring outputs must be checked against local reality. Many already combine Early Warning indicators with additional ground observations, field reports, crop statistics, weather stations and expert knowledge as these remain essential for building confidence in the information derived from satellite observations. However, better and common mechanisms for collecting, standardizing and sharing these data would improve the reliability of all systems.

What does this mean for the early warning community?

The interviews show that agricultural early warning is not only a technical challenge, it is also a communication, coordination and trust-building challenge. Although several desirable product developments and improvements have been identified, users are not merely asking for more data for its own sake. In the first place, they are asking for early warning information that is easier to access, easier to interpret, more locally relevant and more clearly linked to decisions. This user perspective is essential: technical improvements only matter if they help people act earlier, with greater confidence.