



Food and Agriculture
Organization of the
United Nations

FAO Global Information and Early Warning System on Food and Agriculture (GIEWS)



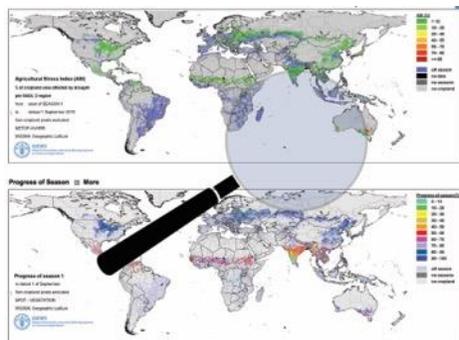
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The FAO Global Information Early Warning System (GIEWS)

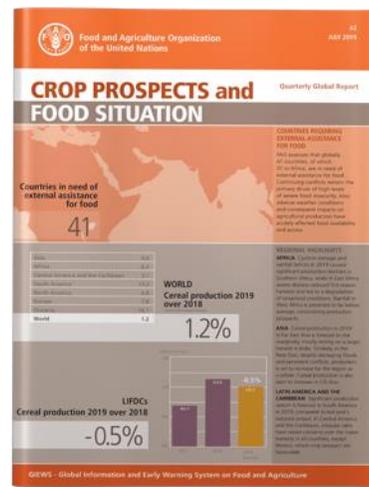
Established after the food crises of early 1970s, the GIEWS regularly monitors and reports on food supply and demand across the world. It is a leading source of information on food production and food security at national, regional and global levels.

Through a variety of assessments and reports, the GIEWS alerts national and international decision makers on impending food crises, aiming to guide timely interventions to protect lives and livelihoods.

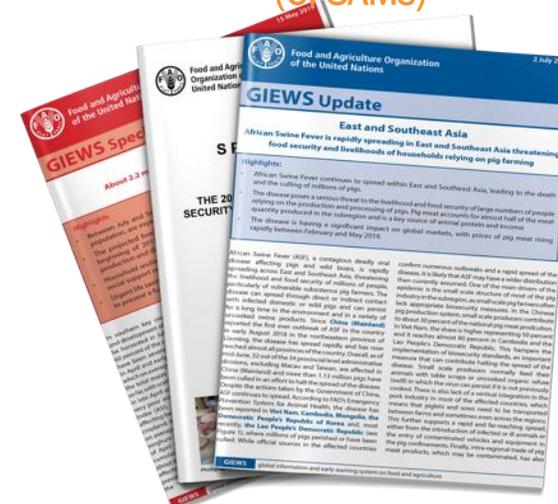
Earth Observation for Crop Monitoring



Crop Prospects and Food Situation



Crop and Food Security Assessment Missions (CFSAMs)

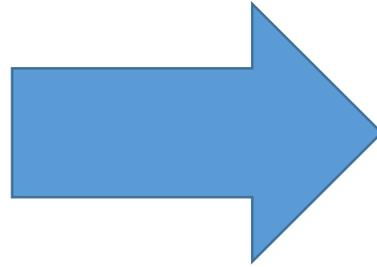


Food Price Monitoring and Analysis (FPMA)

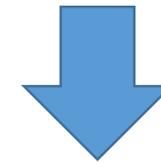


Which are the main variables monitored by GIEWS?

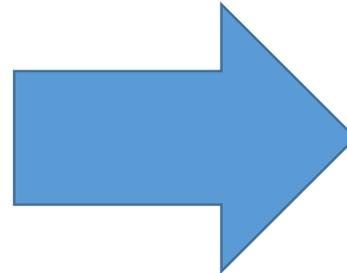
- weather conditions
- input availability and prices
- pest and disease outbreaks



Crop production
monitoring

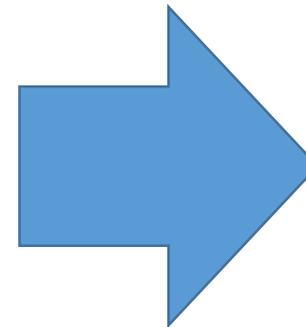


- conflicts
- trade flows, including food aid
- food stocks



Food availability
- Supply -

- international and domestic food prices
- policies
- humanitarian interventions
- macro-economic conditions



Food access
- Demand -

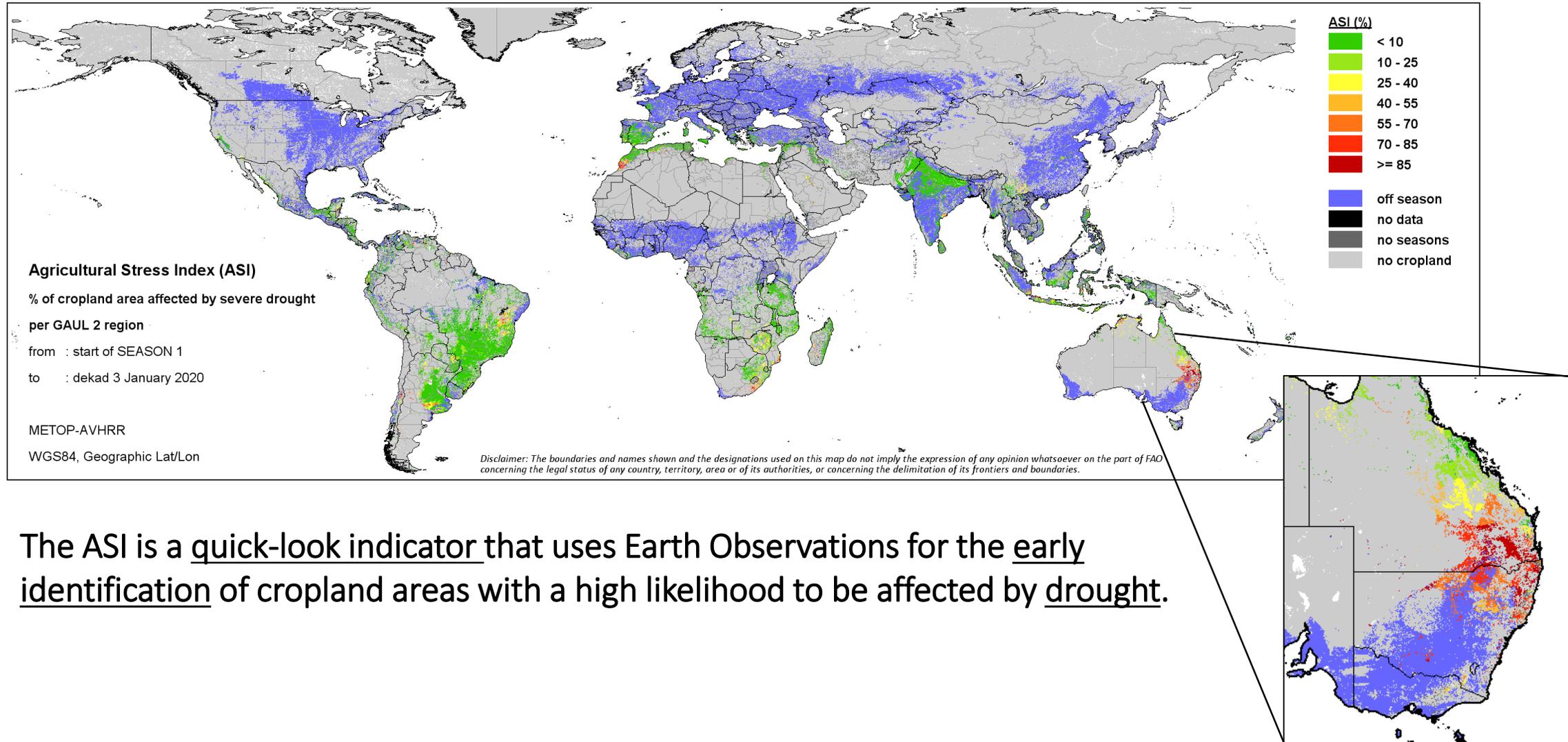
Which are the **information sources & tools** used by GIEWS?

- Reviewing and analysing data and reports, from official and unofficial sources
- Relying on a network of key informants at various levels
- Maintaining updated database of domestic and international prices for several food commodities in several markets
- Performing specific rapid food security assessments in countries facing emerging food crises
- Maintaining updated cereal balance sheets at country level, identifying likely food gaps
- Analysing remote sensing data and using Earth observation tools for crop monitoring: the FAO-developed Agriculture Stress Index, ASI



Expert judgement
and consensus building

What is the Agriculture Stress Index (ASI)?



The ASI is a quick-look indicator that uses Earth Observations for the early identification of cropland areas with a high likelihood to be affected by drought.

How does the Agriculture Stress Index (ASI) work?

ASI uses 1-km resolution

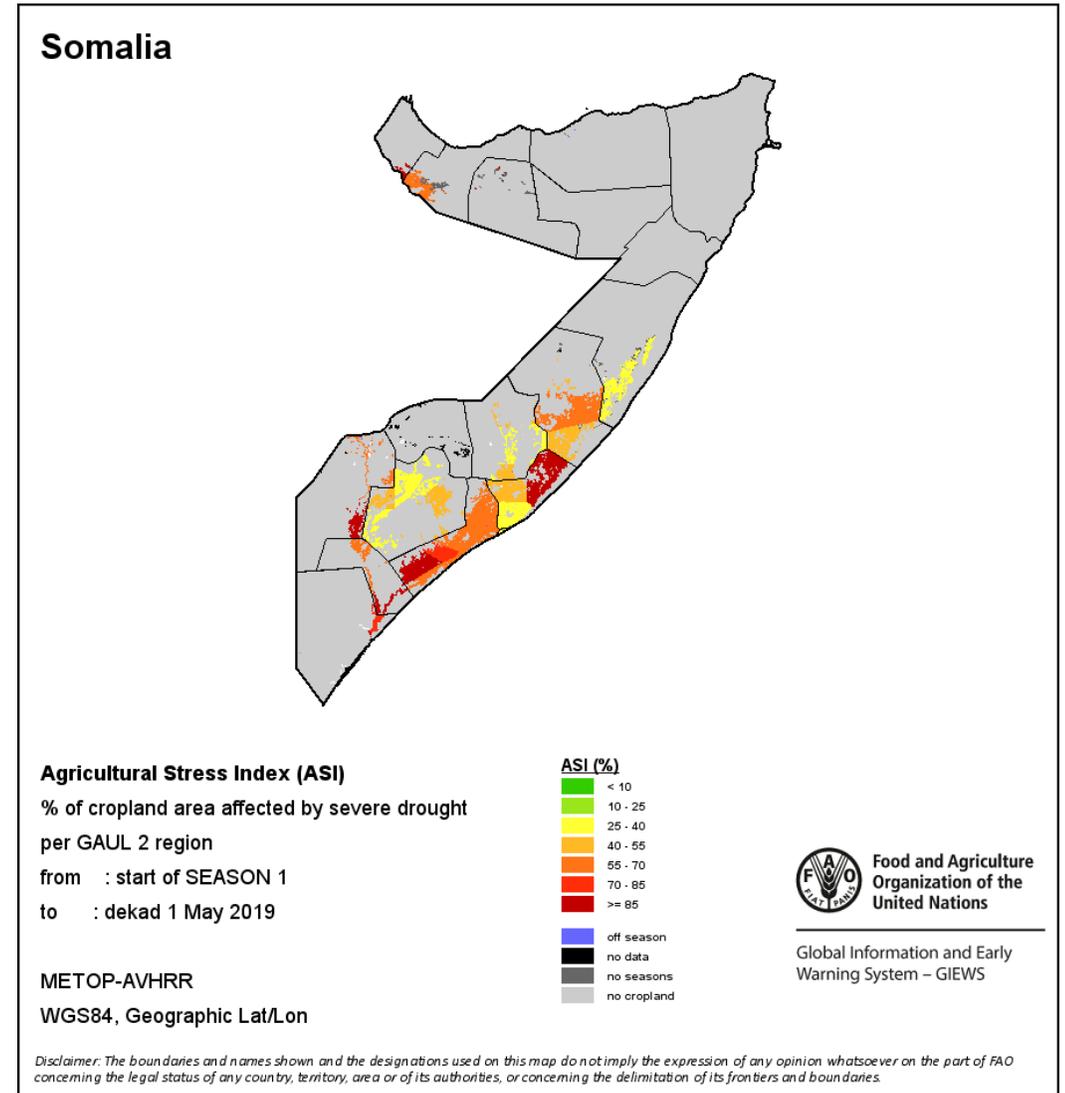
Building block is the Vegetation Health Index (VHI), a composite index combining:

- the Vegetation Condition Index (VCI) and
- the Temperature Condition Index (TCI)

Integration of VHI values in time and space, assessing the intensity and duration of dry periods

- use of crop calendars
- use of coefficients to take into account crop sensitivity to dryness at different phenological phases
- use of crop masks

Thresholds: VHI<25% = extreme drought
 25%<VHI<35% = severe drought
 35%<VHI<38% = moderate drought



From global to country level Agricultural Stress Index

Country-level ASI allows countries to generate better results by fine tuning global parameters using detailed land use maps, sowing dates, length of cropping cycles and crop-specific water-stress sensitivity coefficients



Which purposes has country-level ASI served so far?

- providing early warnings for agricultural droughts
- trigger the implementation of mitigation interventions and early actions
- guiding investments in drought-prone areas
- threshold for payment of indexed crop insurance premiums
- forecasting yields in inaccessible areas (conflicts)

What next for ASI?

Development of a probabilistic drought forecast

Possibility to zoom in some hotspot areas using high-resolution images through technical cooperation and synergies with other institutions

Use of improved crop masks and crop calendars

Use of Artificial Intelligence and Machine Learning



Thank you!

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