



USDA SCIENCE COUNCIL EMERGING TECHNOLOGIES TEAM

CHARTER

I. PURPOSE

Assessments of agricultural production are needed by strategic decision makers and producers. Agricultural production is broadly defined as the biotic, environmental, and management factors involved in the production of food and fiber (similar to Pillar One of Food Security with expansion to include fiber)ⁱ.

Remote sensing, field sampling, producer surveys, and crop growth models are among the technologies used for agricultural production assessments. New information from advanced remote and *in situ* sensors are becoming available that, when integrated with existing measurements, observations, and surveys, offer opportunities to improve the efficiency of the process while offering the potential for more robust and timely assessments. Recent advances of data processing algorithms and computer systems offer opportunities that can also improve assessments, including the identification of factors limiting production.

The Emerging Technologies Team will fulfill the need for a coordinated group within USDA to facilitate and accelerate the exploration, adaptation, and adoption of new and emerging technologies for advanced assessments of agricultural production. This suite of technologies includes those that can be used to determine significant factors underlying the variability of production at multiple spatial and temporal scales, and the analysis products and software needed to integrate new sources and types of data with ongoing and legacy data. The Emerging Technologies Team will strategically assess: 1) sensors from space, air, and ground, and other sources of data and information, 2) research and development needs, and 3) options for adoption and integration of new technologies, data, and information into systems used by USDA stakeholders while ensuring the confidentiality of data collected by USDA and subject to the confidential information provisions of Title V of Public Law 107-347 (E-Government Act, Confidential Information Protection and Statistical Efficiency Act of 2002) and other relevant federal laws.

II. OBJECTIVES

The USDA Emerging Technologies Team will:

- 1) Identify new and emerging technologies relevant to the USDA for assessing agricultural production and factors affecting variability in production.
- 2) Evaluate new technologies and recommend ways to integrate data from these new

technologies within existing USDA processes and procedures. This will enable opportunities for continual improvement of production estimates across a range of temporal and spatial scales, and will enhance understanding about sources of production variability to USDA stakeholders.

- 3) Strengthen pathways for research to operations via regular, focused dialogue between research agencies and operational agencies. The team will define requirements and the potential for 'analysis ready products' needed to enable effective adoption by USDA agencies.
- 4) Prioritize and recommend resources needed to incorporate new technologies into existing systems across the USDA. The team will generate cost estimates and budget recommendations for consideration by the Science Council.

III. SPONSORSHIP and MEMBERSHIP

The USDA Chief Scientist will sponsor the Emerging Technologies Team. The Team will be accountable to the USDA Science Council for its activities and work products.

The Team will consist of two standing committees: a Leadership Committee, and a Technical Experts Committee (TEC). Agencies from across the USDA will select representatives to serve on both committees.

The Leadership Committee will be in-charge of setting priorities and developing action plans and budget recommendations needed to achieve or make progress on high-priority areas.

The Technical Experts Committee will be in-charge of facilitating information exchange about new and emerging technologies relevant to the assessment of agricultural production, and will explore the transfer of these new and emerging technologies from research to operations.

Each standing committee will have two co-chairs selected from members of that committee. Chairs will serve two-year terms; after which new co-chairs will be selected by majority vote from within each committee. There will be a designated liaison between the two committees for direct communication and feedback between the groups. The four co-chairs and the liaison will meet bi-monthly, or more frequently as needed, to ensure that the two committees are working effectively together.

Additional committees (Functional Groups) will be created to work on specific Priority Areas as determined by the Leadership Committee with input and recommendations from the TEC. Members of a Functional Group will be recommended by members of the TEC, and can be from the TEC (including self-nominations) and from other experts within the USDA or from other USG and non-USG organizations, as needed. Members of a Functional Group and the chair of the Functional Group will be selected by the co-chairs of the TEC with input from the co-chairs of the Leadership Committee. Each Functional Group will report

to the TEC in advance of the quarterly Science Council meetings.

Members will serve without compensation beyond their regular salaries; thus, there will be no cost of operation. Logistical support, such as needed for committee meetings, will be provided by the home agency of each committee member.

III. COMMITTEE OPERATIONS

The Emerging Technologies Team (Leadership Committee and TEC) will jointly meet quarterly to:

1. Review the actions of the Team as a whole and discuss material to be presented to the Science Council.
2. Discuss priorities for the next quarter.
3. Explore lessons learned from experiences in previous quarters and to discuss improvements to be implemented during the next quarter.

The quarterly meetings will occur at least two to three weeks before the quarterly Science Council meetings.

The Leadership Committee will meet quarterly or more frequently as deemed appropriate by their co-chairs to:

- 1) Review the recommendations from the TEC based on action taken on existing priority areas, and to designate new priority areas to be worked on. Suggestions for potential priority area topics can come from members of the Leadership Team, TEC, stakeholders, administrators or other USG officials. Issues requiring rapid response can be submitted at any time to the Co-Chairs of the Leadership Committee for consideration by the committee.
- 2) Develop a course of action for each priority area (existing, new), such as convening a new Functional Group or expanding the scope of an existing Functional Group.
- 3) Identify high priority areas where additional resources are needed, and create budget recommendations for these high priority areas to the Science Council.

The Technical Experts Committee (TEC) will meet monthly or more frequently as deemed appropriate by their co-chairs to:

1. Exchange information about current technologies that may be useful to others in the USDA working on similar problems.
2. Provide opportunities for dialogue between members of research and operational agencies in order to: assess the needs of operational agencies and to allow new innovations from research agencies to be presented to operations agencies.
3. Evaluate new and emerging technologies, and submit recommendations on prioritization and paths to their adoption to the Leadership Committee.

4. Discuss progress and challenges on current priority areas based on Functional Group reports.
5. Discuss and prioritize new areas to be worked on based on requests from the Leadership Committee or others; create Functional Groups for each new priority area as required.
6. Develop recommendations of priority areas for funding before submission to the Leadership Committee.

IV. PRODUCTS AND REPORTS

The Leadership Committee and TEC co-chairs working with the liaison will submit an annual report to the Chief Scientist and to the USDA Science Council on activities undertaken by both committees. The report will summarize all outputs of the two committees and the Functional Groups for the previous year, including: completed and on-going research into new and emerging technologies relevant to improving agricultural production assessments, successful application and integration of new technology by the USDA, recommended technology priorities, and budget recommendations for enhancing USDA production assessments. Other products will be submitted to the Science Council on an "as-needed" or "as-required" basis.

This charter shall be evaluated and updated every two years or as-needed by the co-chairs of each committee or upon request of the Science Council.

ⁱ The World Summit on Food Security in Rome (16-18 November 2009) defined the four pillars of food security as availability, access, utilization, and stability. View the [Summit Declaration](#) for more information.