An SMS Based System for Monitoring of Progressive Development of Plant Diseases: A Pilot Initiative for Surveillance of Wheat Rusts in Turkey

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Background

Wheat Rust Disease Global Programme

- Prevention and preparedness & management
- Technical support
- International collaboration
Components of the programme:

- Preparedness and contingency **planning**
- **Surveillance** and early warning,
- **Variety** registration and recommendation,
- **Seed** multiplication and distribution,
- Training of farmers for integrated **management** of rusts by **farmers**,
- **Regional** collaboration
Global rust monitoring system

- Support to Global Rust Monitoring System runs through BGRI
- Collaboration with CIMMYT, ICARDA and AARHUS University on Global Rust Monitoring system
- Support to countries for field surveys
- Rapid surveillance for emergency response!
Why SMS?

- Rapid response requires
  - **Rapid** access to field information,
  - Effective **coordination** and planning,
  - **Wide** coverage for monitoring,
  - Quick **warning** and decision making,
  - **Field** data
    - Rapid
    - Reliable

- **SMS** Rapid, wide coverage
Structure of the system

- SMS gateway tool and software,
- An operation unit based at Ministry,
- Network of
  - extension officers
  - research institutes

Pilot activity:

- Central Anatolia
- Six districts from five provinces:
  - Ankara, Konya, Eskisehir, Sivas and Kayseri
Procedures

- SMSs sent from each district twice a week with the following information:
  - **Presence** and species of rusts in fields,
  - **Percentage** of infected plants,
  - Any other relevant **information** such as field size or name of the cultivar.
Findings

IMMEDIATE DISPLAY

WARNINGS:
- SMS
- MAIL

FILE & STORE
Findings

- The SMS reports facilitated **monitoring** of disease development through the season.
- Yellow rust initiated in **11%** of the fields,
- More frequent in districts of Susehri, Tomarza, Pinarbasi, Alpu and Cihanbeyli.
- Infections remained relatively **low** through the season,
- Only **3 fields** reached the 5-14% incidence category and one 40-100%. 
Yellow rust development
Search / reporting tool
Functions of the system

- Utilization of **extension** offices for surveillance,
- **Rapid** access to field data,
- **Exchange** of information among extension, offices, operation unit and relevant authorities,
- Early **warning** and decision-making tool to facilitate timely interventions,
- Assists **research** institutions to design their scientific surveys in the most appropriate locations and directions, monitoring and management systems.
Future prospects

- Adaptation to individual needs possible,
- Can include other pests and diseases,
- Can be considered as a component of wider crop monitoring systems,
- Effective tool for rapid response,
- Information sharing and collaboration between research and extension institutions.
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