

# TURKISH PILOT AREA Menemen



PRODUCE MORE WITH LESS

- Menemen plain is at the end of downstream of Gediz River (275 km long)
- Menemen is one the richest plain regarding to the crop pattern.
- The plain is effected by river pollution and drought extremely because of being at the end of the river.

## General Description

- MENEMEN: Total Area: **69.400 ha** // Agricultural Area: **22.994 ha**
- TOTAL POPULATION: **160.000**
- LAND USES: **Agriculture 33%, Forest and semi-natural land 23%, Meadow 4%, other 40%**
- IRRIGATED AREA: **19.483 ha** // NON-IRRIGATED AREA: **898 ha**
- GROUNDWATER IRRIGATED AREA: **1150 ha**
- AVERAGE ANNUAL RAINFALL: **540 mm**
- IRRIGATION SYSTEMS: **2% drip, 98 % furrow**
- MAJOR CROP TYPES: **Field Crops 52%, Vegetables 17%, Vineyard 13%, Olives 10%, Others 8%**
- CROPS IN THE PROJECT : **Wheat 1500 ha, Cotton 8500 ha, Maize (first and second crop) 2107 ha**

## Pilot Area features

- Competition among different water uses; irrigation vs domestic consumption especially on groundwater resources
- Degradation in surface water quality threatens agricultural activities
- Frequent droughts and intensive groundwater consumption decrease water tables
- High costs for agricultural inputs such as fertilizers decrease net economic benefits obtained by agriculture
- Unplanned Crop Production
- Divided Lands & Small Field Plots Average farm size: 2 ha

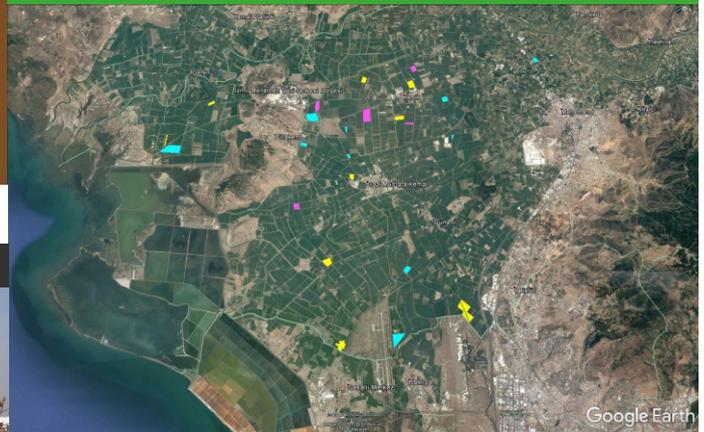
## Experiments in Turkish Pilots



Drip irrigated "Maize 2016"



Drip irrigated "Cotton 2016"



Menemen Plain satellite view



Regional view of the pilot area

- 2 years//3 crops: Winter: Wheat, Summer: Cotton & Maize (Second Crop)
- Field Observations + Earth observations + GIS Integration
- Produce the productivity maps and conduct irrigation recommendation.
- To introduce FATIMA's tools and products to farmers for more accurate precision farming (in sense of fertilization and irrigation) applications and ensure them a profitable and sustainable way of farming.

## Area Pilot Area Facts & Figures

### First Year Pilot Results

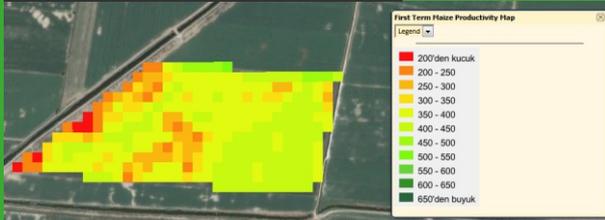
Earth assisted tools such as webGIS now has a fundamental application. Capacity and recommendation providing tools have been improved in this case.

Fertilizer recommendations, due to more in-situ field observations, will be given to the individual farmers in our upcoming campaign term.

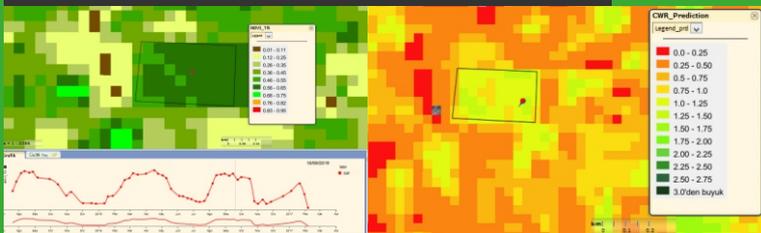
Also, the curiosity and the reliability to the project have been increased among the farmers once the results of the satellite images match the agricultural experience achieved by many years of observation.



First term wheat productivity map of one of the UTEAM's fields



First term maize productivity map of a local champion based on accumulated transpiration



On the left, NDVI values, on the right, irrigation recommendations (mm/day) throughout the dates of a UTEAM pilot field



Field observation of the clients through cell phone applications

### Future Perspective / Regional Impact of FATIMA

The perspective is to provide a service which is "Complete service on Farm Level (Irrigation water recommendation, productivity mapping, fertilizer recommendation, farm audit practices)". Better management of irrigation water may lead more efficient use of water, therefore especially during drought years irrigation water will be allocated more accurate and in a feasible way. Beside it will decrease conflicts among water users in drought years. Accordingly, big farmers, farmer based organizations and similar entities may be main commercial targets, as they are based on economic profit. Irrigation management is due to external factors such as availability of water in irrigation scheme, irrigation methods. Therefore even the recommendations are accurate they may be impractical. However fertilizer recommendations are more applicable because they are not due to external factors. Besides following the fertilizer recommendations will be more cost effective. The main target is to provide recommendations on irrigation and fertilization to the farmers by using Information Technologies.



Fertilizing according to productivity map recommendations

### Country Pilots regional team



<http://arastirma.tarim.gov.tr/izmirutaem>



<http://www.ea-tek.com/>

