



# **Agricultural Research Organization**

## ***The Volcani Center***

**State of Israel / Ministry of Agriculture and Rural Development**



# VOLCANI CENTER



The ARO – Volcani Center was founded in 1921

It is the **Research Arm** of the Ministry of Agriculture

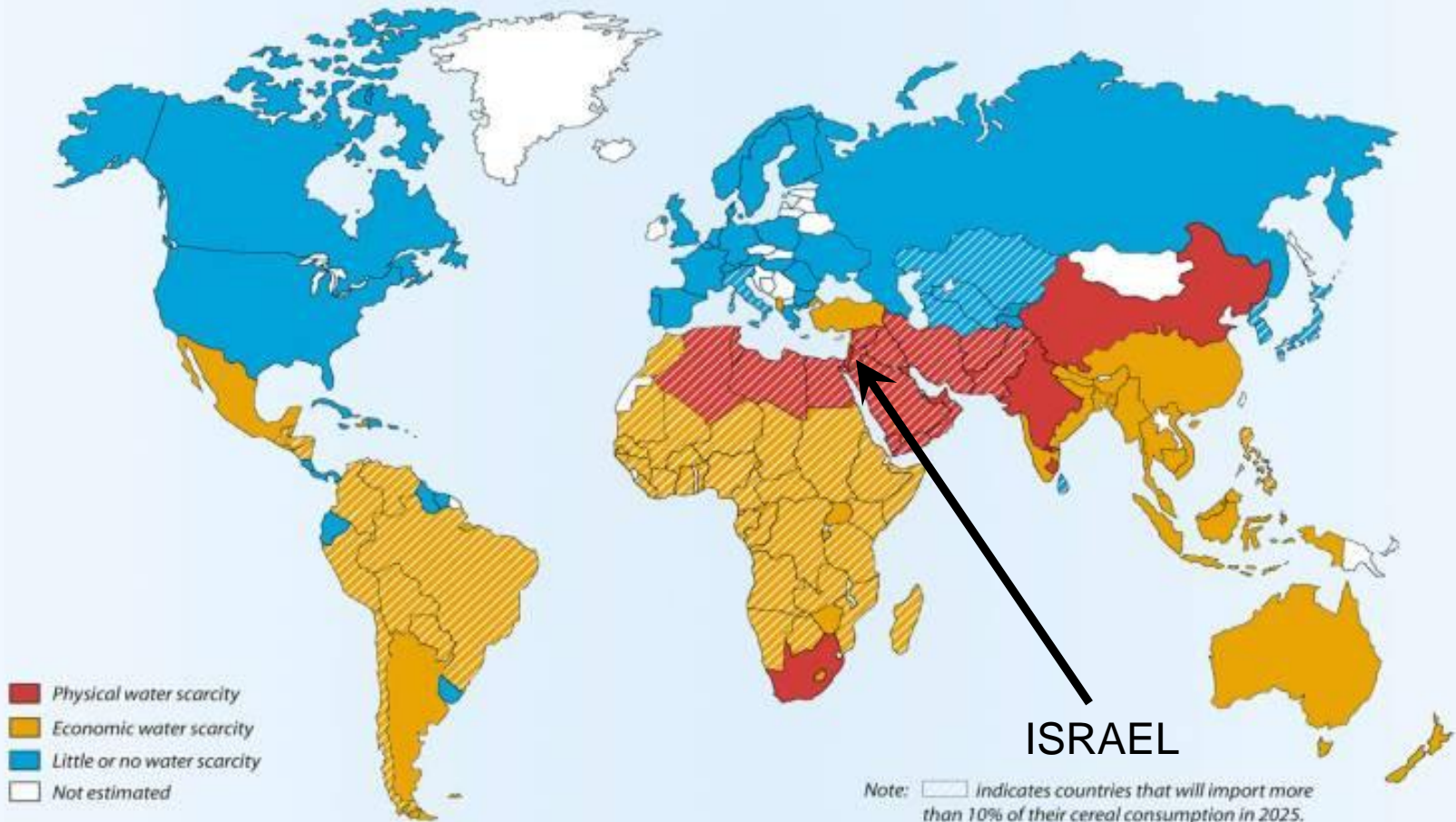
ARO represents the oldest, largest, and leading agricultural research institution in Israel, responsible for a large part of the agricultural research



# Israel in the world



*Projected Water Scarcity in 2025*



DTP Unit, IWMI—January, 2000

# Israel in the Middle East



**Area: 22,000 Km<sup>2</sup>**

**Arable land:**  
**420,000 ha**

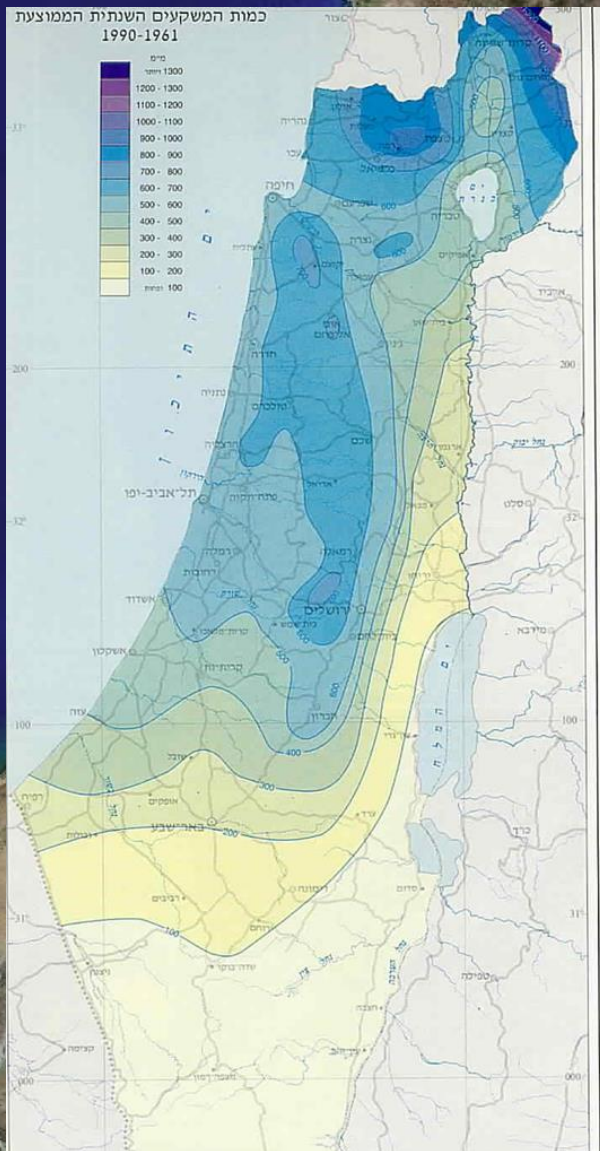
**Irrigated:**  
**158,000 ha**

**Non irrigated:**  
**134,400 ha**

**Pasture:**  
**130,000 ha**



# Precipitation (mm/year)



# Constraints of Israeli Agriculture



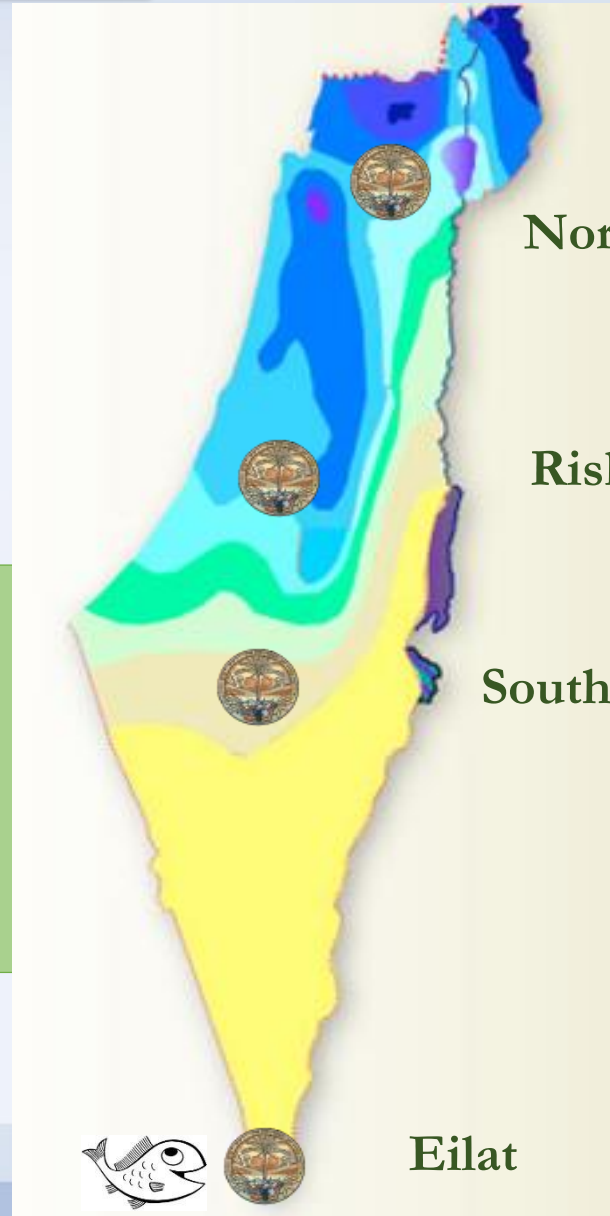
- ❖ Shortage of water resources
- ❖ Scarcity of precipitation
- ❖ Two thirds of the land defined as semi-arid or arid
- ❖ Shortage of farm labor
- ❖ Complex geopolitical environment
- ❖ Distance from the export markets



# The Volcani center



200 Scientist (PhD)  
400 Research Assistants  
140 Administration Staff  
300 Graduate Students  
60 Visiting Trainees



**Northern Research Center**  
**Neve Yaar**

**Rishon LeTzion Campus**

**Southern Research Center**  
**Gilat**

**Eilat**



# Research Institutes



**Post-Harvest**



**Soil and Water**



**Animal Sciences**



**Plant Protection**



**Plant Sciences**



**Engineering**



**Neve Yaar Center**



**Gilat Center**



# GILAT: Agriculture at the edge of the desert



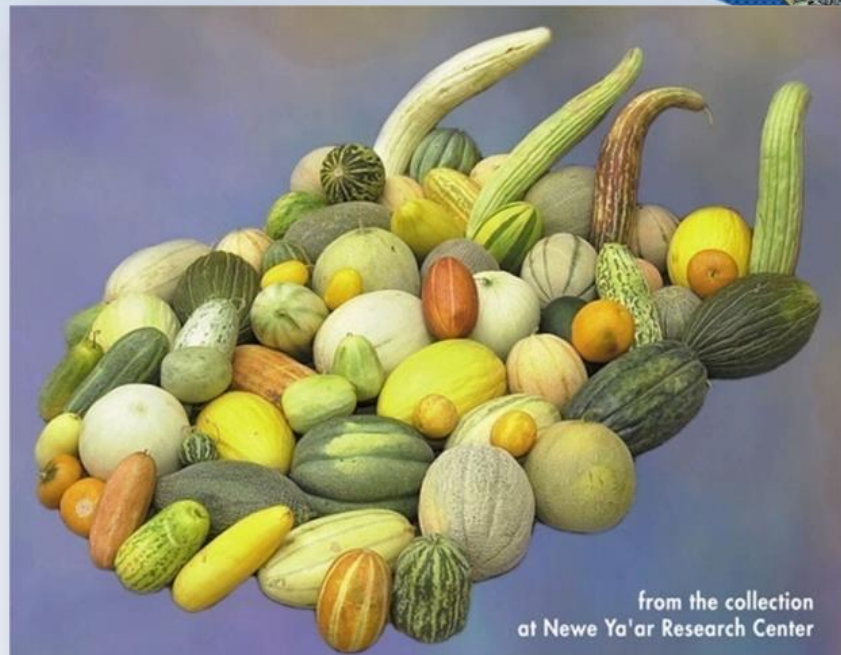
# Neve Ya'ar: Sustainable Agriculture and Health



Haifa

לבנון

הים התיכון



from the collection  
at Neve Ya'ar Research Center



Vitamins; Antioxidants; Flavenoids



Natural pest solution eliminating needs for pesticides

# Adaptation of the agricultural research to the emerging needs



## Farmer Needs



- High Yields
- Protection from pests and diseases
- Storage and shipment stability
- Efficiency in production costs

## Consumer Needs



- Functional Food
- Flavor and Aroma
- Reasonable Price
- All-year round availability
- Agro-tourism

## World's Need



- Adaption to Climate Change
- Food Security
- Environmental Sustainability



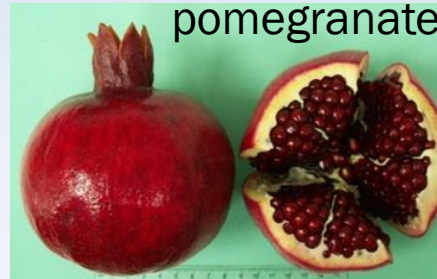
# Breeding program



Quality (taste, color, aroma, health food);  
Shelf life; Size & shape;  
Availability; Resistance.



olives



pomegranate



figs



grape



dates



barley



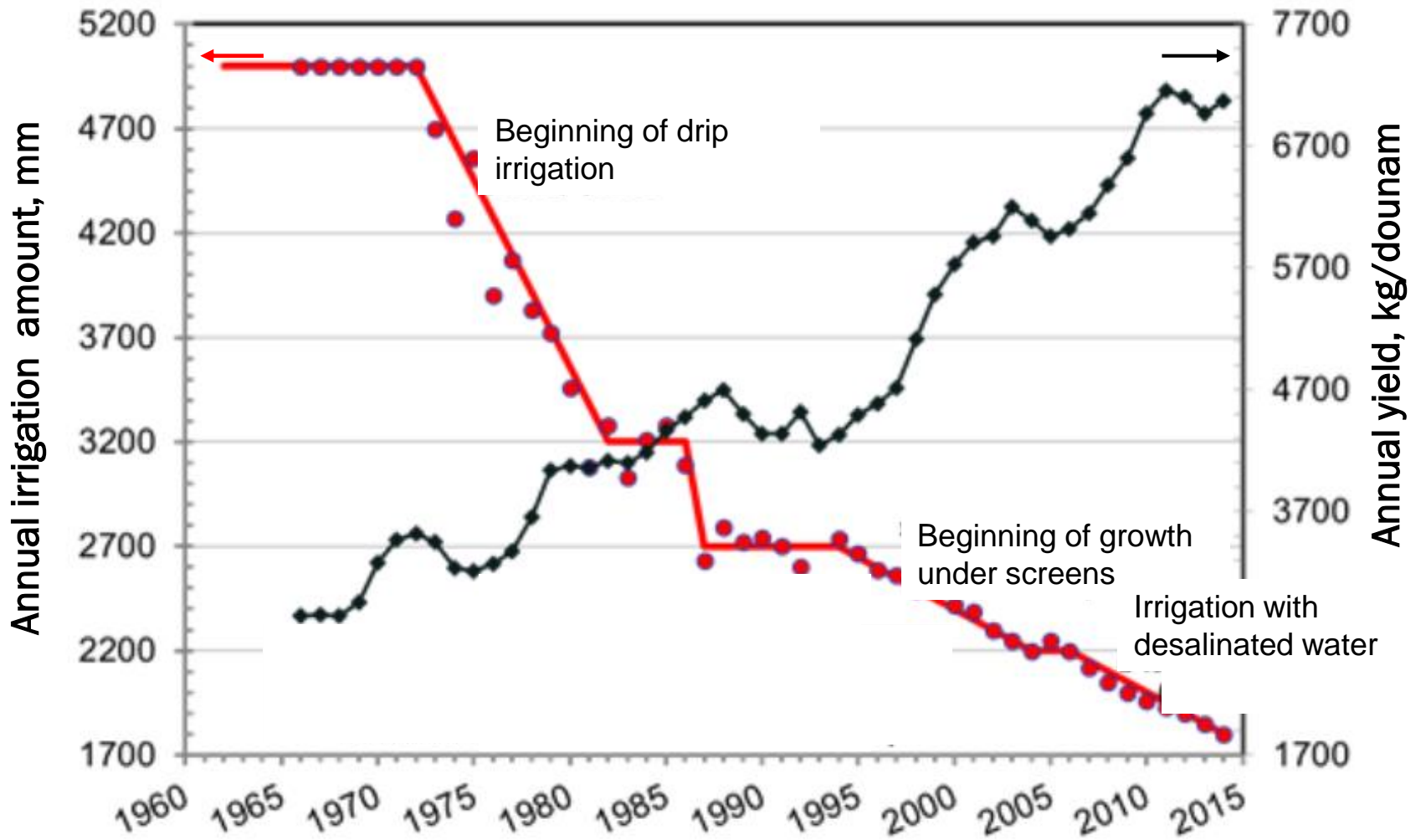
wheat

Seven biblical species of Israel

# Improving Water Use Efficiency



The case of the Banana growth in the Jordan Valley



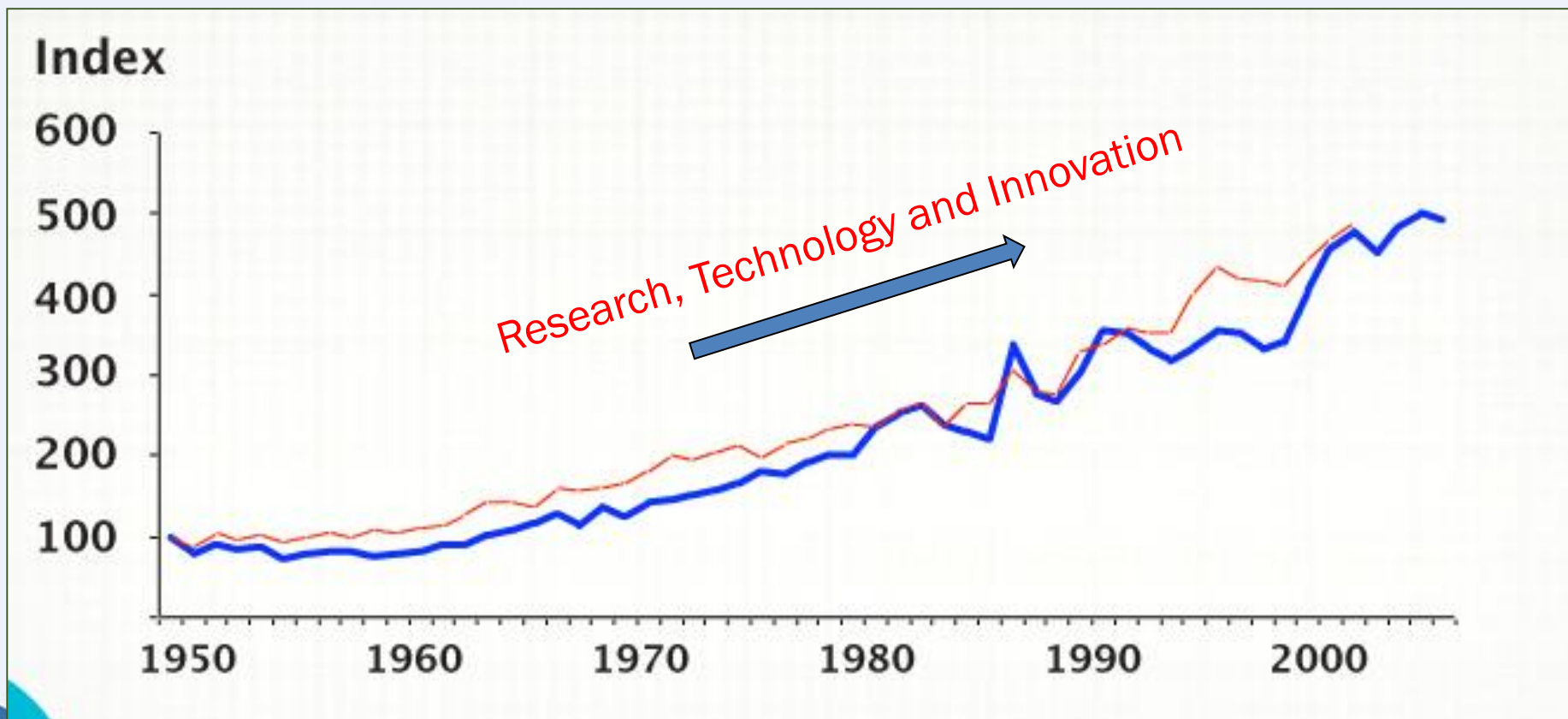
# Evolution of Productivity in Agriculture



From the early 1950s agricultural productivity has risen:

- five-fold per unit area
- five fold per cubic meter of water

**More for less!**



# Beyond the research



**THE UNIT FOR  
SCIENCE  
ORIENTED  
YOUTH**



**THE ISRAEL  
GENE BANK**



**KIDUM R&D  
APPLICATIONS  
AND TECHNOLOGY  
TRANSFER**

# The unit for Science-oriented Youth



## YOUTH OUTREACH PROGRAMMING

"Making the world of agricultural science  
accessible to the future generation"

Promote  
Agricultural  
Science Amongst  
Youth

Agriculture  
as  
Therapy

Professional  
Development  
Courses for  
Teachers





# The interface with the industry



## KIDUM



### # 1

EVALUATION OF  
COMMERCIAL  
FEASIBILITY OF  
PROJECTS



### # 2

HANDLING OF  
JOINT VOLCANI  
AND INDUSTRY R&D  
PROJECTS



### # 3

LICENSING OF  
RIGHTS RELATED TO  
INTELLECTUAL  
PROPERTY



# Israel as a Global Lab

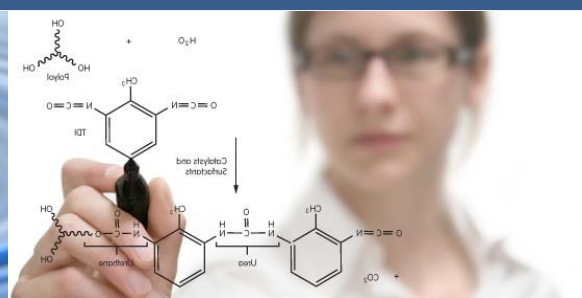


**Need**

**Innovative  
Solutions**

**Local Testing**

**Global  
Upscaling**



# International Cooperation



## INTERNATIONAL COOPERATION OF VOLCANI THROUGH JOINT RESEARCH PROGRAMS



# International recognition



2017



## UNESCO International Research in Life Science Prize

"Volcani has successfully developed cutting-edge innovations and methodologies in agricultural research with practical applications as well as capacity building programmes to promote food security in arid, semi-arid and desert environments, advancing human well-being."

*Thank You !*

