

# → WELCOME

## TO THE ISRAEL-KENYA AGRICULTURAL INNOVATION AND TECHNOLOGY CENTER DON BOSCO EMBU

### AITEC - FARM

Education is not preparation  
for life; education is life itself.

JOHN DEWEY



[WWW.AITECFARM.COM](http://WWW.AITECFARM.COM)

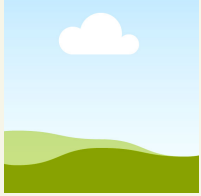




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Welcome Booklet

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The Concept

**aitec** **it's fresh.**



**The AITEC is a medium scale farm that operates a center of knowledge with various types of training programs, regional extension services, practical research, logistical services and market connectivity.**

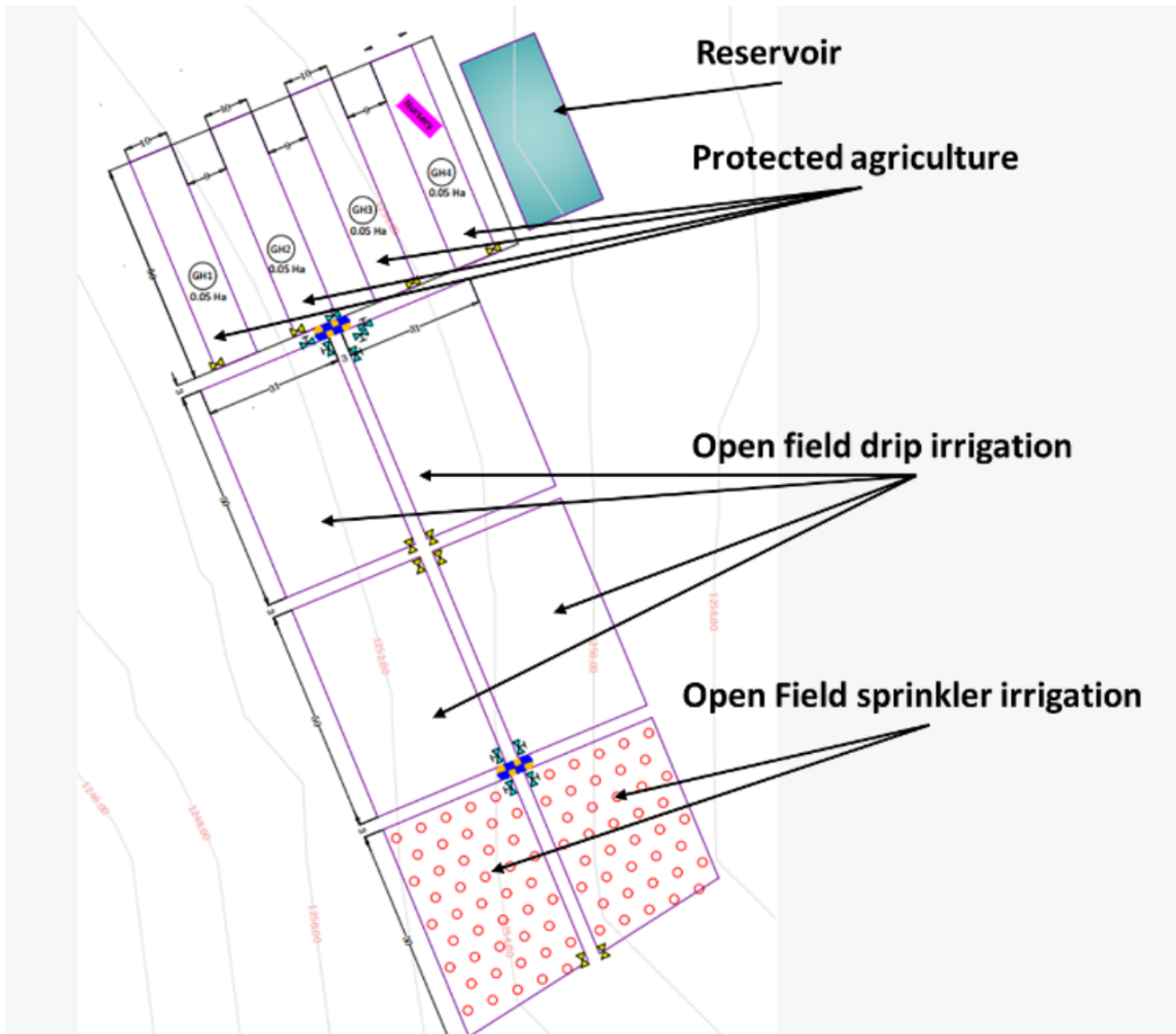
5000 years ago the first agrarian societies started to form throughout the world and for thousands of years, rural agricultural societies have been the dominant way of life for the majority of the world's population. This century for the first time in human history more people are living in urban settings compared to rural areas.

Agriculture has faced growing demands from this rapidly growing urban population. Growing more food requires more energy, land and water creating a demand for commercialized food production.

The Agricultural Innovation and Technology Centers - AITeC Farms are a groundbreaking concept that targets The Sustainable Development Goal to "End hunger, achieve food security and improved nutrition and promote sustainable agriculture" (SDG2).

The AITEC provides demonstration of technologies, capacity building and research based on a connection to Israel's advanced agricultural ecosystem in order to improve agricultural productivity and efficiency through.

# The Don Bosco AITEC Embu



**The AITEC farm in Embu is partnership that was established together by Don Bosco Embu, Water4Mercy and CultivAid.**

The Site includes the following components

- 2 acre (0.8 ha) Drip and Sprinkler open field production
- 480m<sup>2</sup> Polyethylene covered High tunnel vegetable nursery
- 480m<sup>2</sup> Polyethylene Flat type Net house for vegetable production
- 4 Polyethylene covered
- low tunnel greenhouse 144 m<sup>2</sup> each
- Establishment of initial infrastructure for 13 hectare open field production
- Meteorological station

## Educational Programs

- 8 month technical training program
- 6 month internship program
- Syngenta Foundations' Agripreneurs program



# SOME OF OUR RESULTS

Growing with a Purpose

THE AITEC SEEKS TO SHARE OUR EXPERIENCE AND KNOWLEDGE IN ORDER TO BENEFIT FARMERS THROUGHOUT THE REGION. THE FOLLOWING ARE SOME OF THE RESULTS ATTAINED THIS PAST YEAR.

ADD TEXT

ADD TEXT



# Tomato

## GENERAL BACKGROUND

- Tomato is a very common vegetable in Kenya. It can be found almost everywhere and throughout the year.
- During the rainy season (October-January), the prices of tomatoes increase (80 KSH per kg), and during the dry season, they decrease to 30 KSH per kg.
- The quality of the tomatoes also varies between the seasons, with better quality tomatoes usually available in the dry season.



## VARIETIES AND GROWING PARAMETERS

Variety	Area (m <sup>2</sup> )	Treatment	Transplant date	Days in nursery	#Days from sowing to Harvest	First day of Harvest	Last Day of Harvest	# Growing Days
Ansal F1	226.8	Variety	07.02.23	-	59	07.04.23	17.05.23	99
Raja F1	226.8	Variety	07.02.23	-	59	07.04.23	16.05.23	98
Galilea F1	226.8	Variety	07.02.23	-	59	07.04.23	12.05.23	94
Assilla F1	226.8	Variety	07.02/23	-	59	07.04.23	18.05.23	100
Terminator F1	226.8	Variety	07.02.23	-	59	07.04.23	22.05.23	104
Rio Grande OP	194.4	Variety	09.02.23	-	57	07.04.23	22.05.23	96

- Method of planting (direct/seedling): seedlings
- Depth of sowing: 50 mm
- Spacing of plants: 60cm
- Germination rate (%): 90 % for Shanty and Galilea. Slightly higher for Zara
- The field was irrigated with drip irrigation
- After establishment, the field was irrigated every 2 days, total of 552.9 m<sup>3</sup>



## PLANT PROTECTION

Pesticide used	Reason for Application
Cutter, Benocarb, Prove, Indoking, Radiant, Levo	Caterpillars, Tuta absoluta, leaf miner
Goldazim 500SC, Victory, Vitra, Metacop	Fusarium wilt, early & late blight

## RESULTS

Variety	Harvest data (kg)	Average weight (g)	Major diameter (cm)	Minor diameter (cm)	Pests/Diseases	Market	Maturity (days)
Ansal f1	1380.16	96.5	6.66	5.16	Tuta absoluta		99
Raja F1	1219.52	100.7	6.59	5.18	Tuta absoluta		98
Galilea f1	1019.33	120.8	7.05	5.52	Tuta absoluta, Vulnerable to black spot	Too big	94
Assila f1	1589.85	106.5	7.4	5.38	Tuta absoluta		100
Terminator f1	1145.28	96.9	6.57	5.18	Tuta absoluta		104
Rio grande OP	713.92	75.6	5.62	5.22	Tuta absoluta	Too small	96

## CONCLUSIONS AND OTHER INSIGHTS ON HARVEST

- Most of the tomatoes were sold to brokers thus an average price of 10sh per kg.
- Most buyers had least preference to Rio Grande due to its small size and Galilea due to its large size
- Assila F1 showed the best yield following was Ansal F1.
- Ansal is the preferred variety for the region.



# Sweet Pepper



## GENERAL BACKGROUND

Green bell pepper is a common crop in Embu County, and in smaller amount also hot pepper is popular. Based on the field tour among farmers conducted by the AITEC's team, the crop is common especially among medium farmers, that already use drip irrigation and nursery-grown seedlings. They main challenges regard plant protection issues (powdery mildew and virus's symptoms were detected and mentioned in the tour).

## VARIETIES AND GROWING PARAMETERS

Variety	No. of beds	Area of crop (m²)	Weight (kgs)	Weight Ha (kg)
Cayenne	1	52.8	62.44	11,825
Zohar F1	2	105.6	484.6	45,890
Maxibell F1	1	52.8	219.3	41,534
Batian F1	2	105.6	438.4	41,515
Buffalo F1	2	105.6	641.3	60,729
Total	8	422.4	1,846	

- Date of transplanting: May 23rd, 2023
- Method of planting (direct/seedling): seedlings
- Depth of sowing (-mm): 50 mm
- Spacing of seedlings: 30 cm. one line of crops per bed



## RESULTS

Variety	No. of beds	Area of crop (m²)	Weight (kgs)	Weight Ha (kg)
Cayenne	1	52.8	62.44	11,825
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Total	8	422.4	1,846	

## CONCLUSIONS AND OTHER INSIGHTS ON HARVEST

- The harvest was easy, input wise.
- All fruits were sold and counted as A class fruits. The rating is depended Quilty and not size.
- But green and color capsicum had a high market demand.
- Small\medium size Green capsicum are prefered by the local market.
- Red and yellow\orenge capsicum were mostly sold at the same ratios.

## PLANT PROTECTION

CHEMICAL USED	REASON FOR APPLICATION
PEPPER WEEVIL	Neem Raj, Cutter 112 EC, Avirmec 18EC.
FUNGICIDE	Goldazim 500 SC, Trianum-p (beneficial)
FUNGAL & BACTERIAL DISEASES	Metacop 450WP , Vitra 40 WG
TERMITES	Kohinor 200SL
PREVENTIVE INSECTICIDES	ASTER Extrim 20SL
CATERPILLAR	Cutter 112 EC





# Cabbage



## GENERAL BACKGROUND

- Cabbage is a biennial plant grown as an annual vegetable crop for its leaved heads. It belongs the brassicas family.
- Through technological advancement there have been several varieties of cabbages which are suited to adapt to different climatic condition and customers preference / market demand.
- It is a highly valued vegetable in Kenya. It usually used to accompany other dishes, as salad or as cabbage juice.
- Cabbage is known to have several health nutrients such as fiber, vitamin K and vitamin C. It also helps in digestion, improve heart health, and decrease inflammation.

## VARIETIES AND GROWING PARAMETERS

Variety	Days in nursery	#Days from sowing to Harvest	First day of Harvest	Last Day of Harvest	# Growing Days
Red kifaruru	0	80	31/03/2023	29/04/2023	109 days up to the last harvest
Pretoria	0	78	28/03/2023	29/04/2023	109 days up to the last harvest
Queen	0	78	28/03/2023	29/04/2023	109 days up to the last harvest
Gloria	0	77	27/03/2023	29/04/2023	109 days up to the last harvest

- Method of planting (direct/seedling): Seedlings
- Depth of sowing (-mm): 50
- Spacing of seedlings: 30cm X 30 cm
- Germination rate (%): excellent
- establishment stage was.
- The field was irrigated with drip irrigation, irrigation every 2 days total amount 573.9 m3.



## PLANT PROTECTION

CHEMICAL USED	REASON FOR APPLICATION
Aphids	Epic 130sc, Kohinor, Cutter,
Caterpillars	Radiant, Cutter
Cutworms	Profile
Thrips	Epic 130sc

## RESULTS

Cabbage Variety	No. of beds	Area of crop (m²)	Weight (kgs)	pieces
Red kifaruru	2	64.8	290.04	105
pretoria	10	351		
Queen	10	351	1950.325	243
Gloria	17	550.8	4853.086	370

## CONCLUSIONS AND OTHER INSIGHTS ON HARVEST

- Most of our clients wanted Gloria and we found it to be the most preferred in the market.
- most of our cabbages busted because of a lot of water and delayed harvesting, to avoid such scenarios we should market our product early.
- The harvest data was taken in kgs and not in heads number, in the future it is advisable to take both the kgs and total heads.
- It is important to take all the data of the spoilt cabbages as it is paramount in calculating the success matrix.
- Timing of our season so that we can fetch a good price in the market.



# OUR SERVICES



## TRAINING PROGRAMS

The AITeC Training programs are built on an integrated curriculum which focuses on 4 main pillars:

- Basic and applied Science education
- Specific agricultural topics that provide practical and theoretical knowledge.
- Learning by doing through on-site field activities at the Training, Demonstration and Research site.
- Agricultural business and entrepreneurial skills.



## DEMONSTRATION AND VALIDATION OF TECHNOLOGIES

The Training, Demonstration and Research site is advanced Israeli Technology to demonstrate and validate them to the local context. The site demonstrates different crops, inputs, techniques and innovations as a method of introducing them to the region.



## VALUE CHAIN DEVELOPMENT

AITeC emphasizes value chain development for specialized high value crops and supports implementation and programs to ensure full operation of the value chain.



## LOGISTICAL SUPPORT

AITeC Logistical Hub promotes market linkages for value chain development. The hub serves to facilitate connections, collaboration and partnerships between local and international stakeholders. The hub promotes market access to agricultural inputs and technologies while simultaneously promoting post-harvest processing and export of local production.



## FARM DEVELOPMENT

The AITeC farm serves as a model medium scale farms, demonstrating proper planning and introducing new technologies and agro-techniques. Through the knowledge and expertise established at the AITeC, we seek to promote the development of commercialized agricultural production.

# TRAINING PROGRAMS



## TVET TRAINING PROGRAMS

The Training program has been collaboratively developed and is implemented by the Don Bosco Technical Institute in Embu with the support of CultivAid. The program provides youth (post Secondary school) with knowledge and practical skills, along with the right attitude for Horticulture Production. The 1-year course provides students an understanding of the holistic nature of agriculture production and the main principles and techniques of modernized agricultural production. The training program's curriculum is based on the national curriculum with practical hands on learning at the TDR site.



## INTERNSHIP TRAINING PROGRAMS

The Internship training program provides recent university or technical school graduates practical hands on agricultural training. The 6 months internship is intended for young professionals and provides experience in implementation, operation and maintenance of advanced agricultural technologies that are introduced through the AITeC. The Interns will work side by side with Israeli agronomists on the implementation of programming at AITEC FARM. CultivAid's Internship program has been operational in Ethiopia since 2016 where it has demonstrated that with the right training programs, local agronomists receive the tools to become leaders of a new generation of agricultural professionals.



## PRACTICAL TRAINING PROGRAMS

The Practical training programs offer a 1-2 day practical training in various subjects. The program targets farmers, agronomists, extension workers in order to share our experience with local professionals and to build a community of experts. The program aims to provide trainings to the region, sharing knowledge and earning revenue for the farm. The trainings operate at a minimum of monthly trainings.

## Types of Trainings

- Irrigation
- Vegetable production
- Seedling development
- Fertilization and plant nutrition
- Mechanization
- Protected agriculture
- Nutrition-sensitive agriculture and more





# COMMERCIAL AGRICULTURE

- The agriculture sector in Kenya is the back bone of the economy contributing approximately 33% of Kenya's growth domestic product (GDP).
- The agricultural sector employs more than 40% of the total population and 70% of the rural population. With a population of about 60 million today and expected to rise to 130 million by 2050, considering that ~65% of the population depend (directly or indirectly) on agriculture.
- Enhancements of the agricultural sector is critical for food security, job creation and economic growth.
- since 2000 medium scale farms owned by Kenyans, exceeds the amount acquired by foreign investors. Many accumulated wealth from non farms jobs such as entrepreneurs and civil servants.

MEDIUM SCALE FARMS HAS INCREASED OVER THE LAST DECAD TO CONTROL RUGHLY 20% OF TOTAL FARMLAND IN KENYA. IN KENYA, MEDIUM SCALE FARMS NOW ACCOUNT FOR 40% OF THE COUNTRY'S MARKETING AGRICULTURAL PRODUCE. THESE FARMS ALSO PROVIDE AN IMPORTANT OPPORTUNITY FOR SMALLHOLDER FARMERS BY ADDRESSING MARKET FAILURES AND PROVIDING THEM WITH MUCH NEEDED SERVICES SUCH AS INPUT PROVISION, FINANCIAL SERVICES, INFORMATION, AND LOGISTICS.

## AITEC SEEKS TO STRENGTHEN THE PRIVATE SECTOR AND THE TRANSFORMATION TO COMMERCIAL AGRICULTURE

**AITEC FARMS OPERATE AS MODEL FARMS, DEMONSTRATING COMMERCIALIZATION AND PROVIDING A SOURCE OF INCOME TO SUSTAIN AND EXPAND ACTIVITIES.**



### PARTNERSHIP FOR ACCESS

To support the development of private sector the AITEC is seeking partnerships to address the 4 pillars required for strong private sector development.

Access To Finance

Access To Inputs + Israeli Technology

Access To Knowledge

Access To Markets.



## DON BOSCO DODOMA

Don Bosco is a private Vocational Training Center, which focuses on providing TVET training primarily among the marginalized youngsters in Embu and throughout country. The institute aims to equip student with the knowledge and experience to be successful members of society.



## WATER4MERCY

"Water4Mercy is a USA based non-profit organization that supports water and agriculture development in Africa for upholding human dignity. The organization stresses providing Water, Food, and HOPE to Remote African villages.



## CULTIVAID

is an Israeli not for profit organization, specializing in capacity building and knowledge and technology transfer initiatives with a focus on the agricultural and water sectors. CultivAid emphasizes the need to develop a knowledge-based infrastructure where technology must be accompanied by professional development.



## EMBASSY OF ISRAEL IN NAIROBI

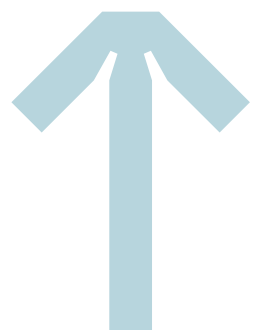
The Embassy of the State of Israel in Nairobi represents the government of Israel in Kenya, Uganda, Tanzania, Malawi and Seychelles, and promotes bilateral and multilateral diplomatic relations, as well as economic ties, development cooperation and cultural activities.



## MASHAV

is Israel's Agency for International Development Cooperation in the Ministry of Foreign Affairs. Mashav is responsible for the design, coordination and implementation of the State of Israel's worldwide development and cooperation programs in developing countries.

# FOUNDING PARTNERS





[WWW.AITECFARM.COM](http://WWW.AITECFARM.COM)