

# Emerging Livestock: Apiculture Farming



KVA Scientific conference , 2020 International  
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# Outline



- ❧ Introduction
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- ❧ Production and Trade
- ❧ Benefits
- ❧ Challenges
- ❧ Opportunities

# Emerging Livestock: Introduction

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- ❧ Emerging Livestock: Non-conventional livestock, are animals that have recently been recognized in the country as an alternative farming activity.
- ❧ Include quails, guinea fowl, donkeys, ostriches, crocodiles among others.
- ❧ Have not received adequate attention in terms of research and development.
- ❧ By law, except donkeys, they are designated as wildlife.
- ❧ However, Kenya Wildlife Service policy and legal framework has allowed farming of these species provided that **a licence** is obtained.

# Emerging Livestock: Introduction

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- ❧ Commercial farming of these animals is progressively increasing due to demand for their products such as eggs, meat, skin and feathers.
- ❧ The demand is mainly due to increasing human population and urbanization

# Apiculture farming



❧ Term Apiculture is derived from Greek:

**Apis-** Bee

**Culture:** Cultivate/farm

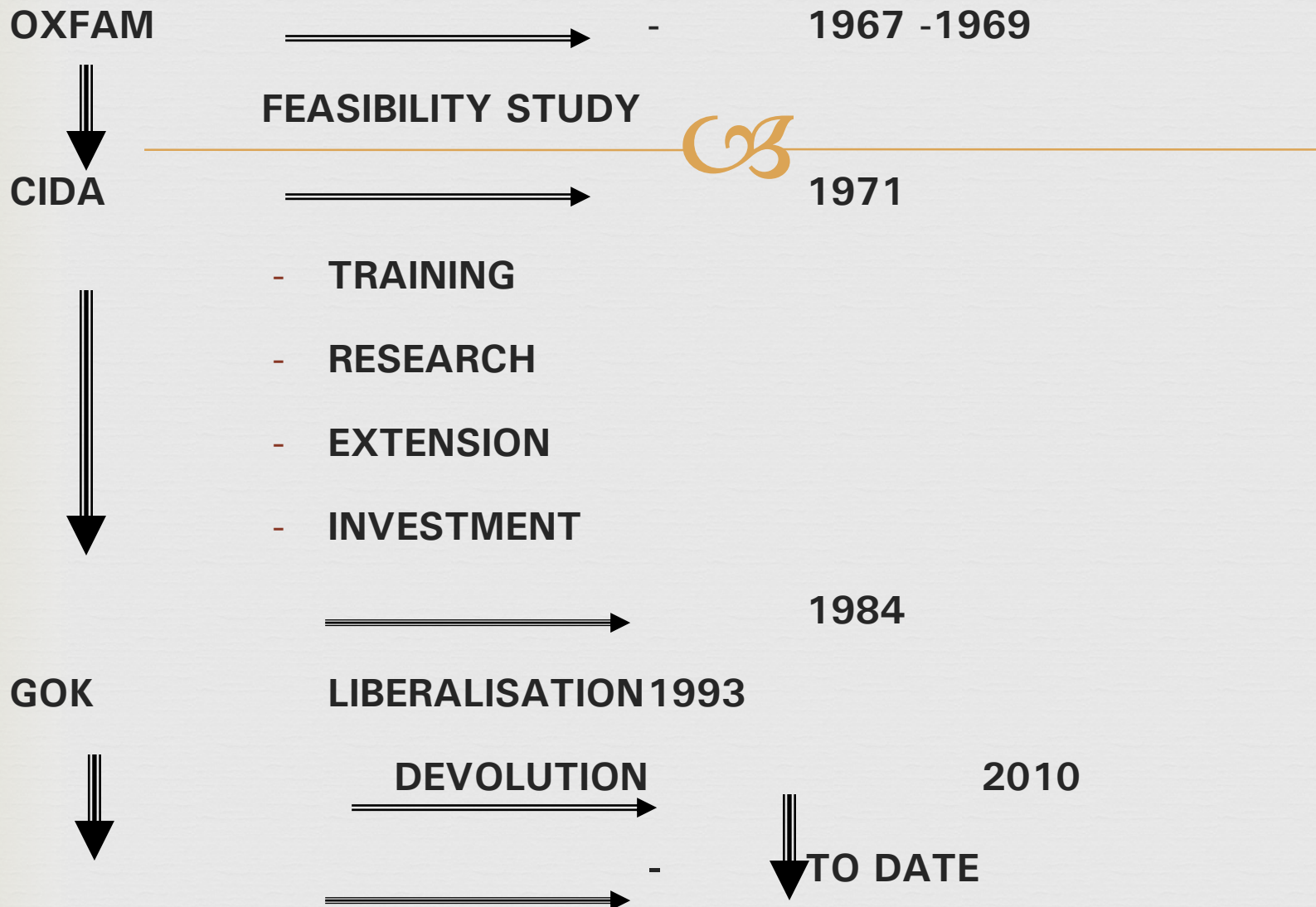
- ❧ **Apiculture** is the management and study of honeybees, derived from the honeybee's Latin name *Apis mellifera*, or;
- ❧ The cultivation of bees on a commercial scale for the production of honey
- ❧ *Apiculture farming* is therefore the maintenance of bee colonies, commonly in man-made hives, by humans for nutrition and economic benefits.

# Honey Bee (*Apis mellifera*)



- ❧ The genus name **Apis** is Latin for "bee", and **mellifera** is the Latin for "honey-bearing", referring to the species' production of honey.
- ❧ It has about 12 species depending on geographical location

# History of Modern Bee Keeping



# Hive Production



- ❧ Beekeeping sub-sector is an important economic activity, with a global annual production of over 1.4 million metric tonnes of honey from over 70 million hives.
- ❧ In Kenya, annual production averages 25,000 metric tonnes, constituting 20% of the country's potential, estimated at over 100,000 and 10,000 MT of honey and bees wax respectively..
- ❧ Beekeeping is mostly practised in arid and semi-arid areas where the potential of other agro-enterprises is low.
- ❧ Kenya ranks third in honey production in the East African region, producing (MOALF,2013).



# Regional Production



- ⌘ According to the FAO, 2006 statistics;
  - ❖ Ethiopia (41,233 tons)
  - ❖ *Tanzania* (28,678 tonns)
  - ❖ *Kenya* (25,000 tonns).
- ⌘ Global average production has risen over the years from 15 (1961) to 21(2000) kg/hive
- ⌘ Kenya's bee keepers whose average is 11.1kg/hive (2017) to bridge the gap.
- ⌘ Countries like China have managed over 40kg/hive.

# Production and Trade Data

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	2013	2014	2015	2016	2017
Import	90.25	76.59	88.36	107.15	134.83
Export	32.42	19.07	13.84	15.82	9.29
Production	8,250	29,742	34,759	25,573	-

# Production & Trade



- ❧ The global economic value of the pollination services provided by managed honey bee colonies though difficult to establish is estimated to range between **€22.8 to 57 billion** (UNEP, 2010).
- ❧ In Kenya, beekeeping contributes around US\$ **120 million** to GDP annually ( MoALF, 2016)
- ❧ It is estimated that 20 beehives (the economic unit to sustain a household) can generate a gross income of **kshs150,000** per year.
- ❧ Beekeeping is a source of employment to thousands of artisans, traders, transporters and other value chain actors.
- ❧ The enterprise is socially inclusive
- ❧ It is also very friendly to the environment and food security because 80% of crops are pollinated by bees

# Benefits of Apiculture



- ❧ Pollinators **contribute** directly to **food security**.
- ❧ They provide high-quality **food** – honey, royal jelly and pollen – and other products such as beeswax, propolis and honey **bee** venom.
- ❧ They are also part of the biodiversity on which we all depend for our survival.
- ❧ **Bees** pollinate 80% of the world's plants including 90 different **food** crops.
- ❧ 1 out of every 3 or 4 bites of **food** you eat is thanks to **bees**.
- ❧ The honey bee is **responsible for** US \$15 billion in U.S. agricultural crops each year.

# Benefits of Apiculture



- ❧ The bees have been declared the most important living beings on this planet, the Earthwatch Institute concluded in the last meeting of the Royal Geographical Society of London in 2019.
- ❧ According to experts and scientists, the bees have joined the endangered species long list.

# Benefits of apiculture



- ❧ The recent studies show a dramatic decline of the bee population.
- ❧ The uncontrolled use of pesticides, deforestation or lack of flowers are the main reasons for their extinction.
- ❧ If all the bees disappeared; we may lose all the plants that **bees** pollinate, all of the animals that eat those plants and so on up the food chain.
- ❧ Which means a world without **bees could** struggle to sustain the global human population of 7 billion.

# Benefits of apiculture



☞ “If the **bee** disappeared off the face of the Earth, man would only have four years left to live.” -**Albert Einstein**

# Challenges facing Apiculture



- ❧ Deforestation
- ❧ Climate Change
- ❧ Uncontrolled use of pesticides
- ❧ Inadequate capacity for value chain actors and enablers.
- ❧ Unregulated service providers, resulting to poor quality inputs and services
- ❧ Uncontrolled importation (movement) of the bees and hive products
- ❧ Environmental pollution



# Impacts on bees

Pesticides, when applied to crops, can reach bees through the air, water and soil

Air pollutants interact with scent molecules sent out by plants which bees need to locate food. This means it takes bees longer to forage and become less effective at pollination

Neonicotinoids can impact the reproductive success of wild pollinators such as bees

Pesticides, particularly insecticides, have been shown to have a broad range of lethal effects on pollinators, such as bees, under controlled experimental conditions

Pesticides can affect the navigation pattern as well as learning and feeding behavior of bees

Neurotoxic pesticides negatively affect bees' ability to recognise their nests



**UN**   
**environment**

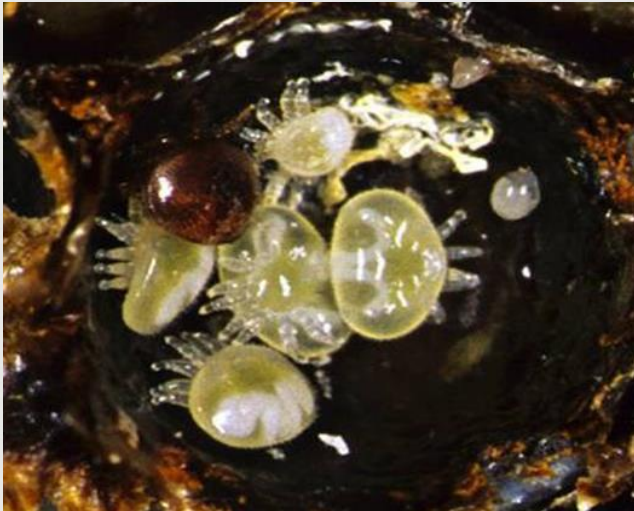
United Nations  
Environment Programme

# Other Challenges



- ❧ Pests: Wax moth, Varroa mites, Bee louse, beetles etc
- ❧ Emerging Bee diseases: (Bacterial, viral, fungal)
- ❧ Delisting of the Country from the EU market due to the use of inadequate analytical techniques in analysis of pesticides, heavy metals and antibiotics residues.

# *Varroa* mites (Varroosis)



# Wax moth



# How to conserve bees



- ❧ *Maintain our forest covers*
- ❧ *Plant bee plants such as sunflowers for decorative purposes on balconies, terraces, and gardens*
- ❧ *Discourage importation of hive products*
- ❧ *Raise awareness on the importance of bees and express your support for beekeepers*
- ❧ *Use bee friendly pesticides that do not harm bees, and spray them in windless weather, either early in the morning or late at night, when bees withdraw from blossoms*
- ❧ *Proper regulation of movement of hive products*

# Opportunities



- 1. Improvement of available technologies
- 2 Increased innovativeness (Comb Honey)



# Opportunities



- ❧ Mainstream Apiculture training for all animal Science courses
- ❧ Regulate the production of inputs
- ❧ Value addition ( Honey, Beeswax, Propolis, Pollen, Royal Jelly, Bee venom)

Protect our future



Autumn of Joy



END



Thank you for Listening