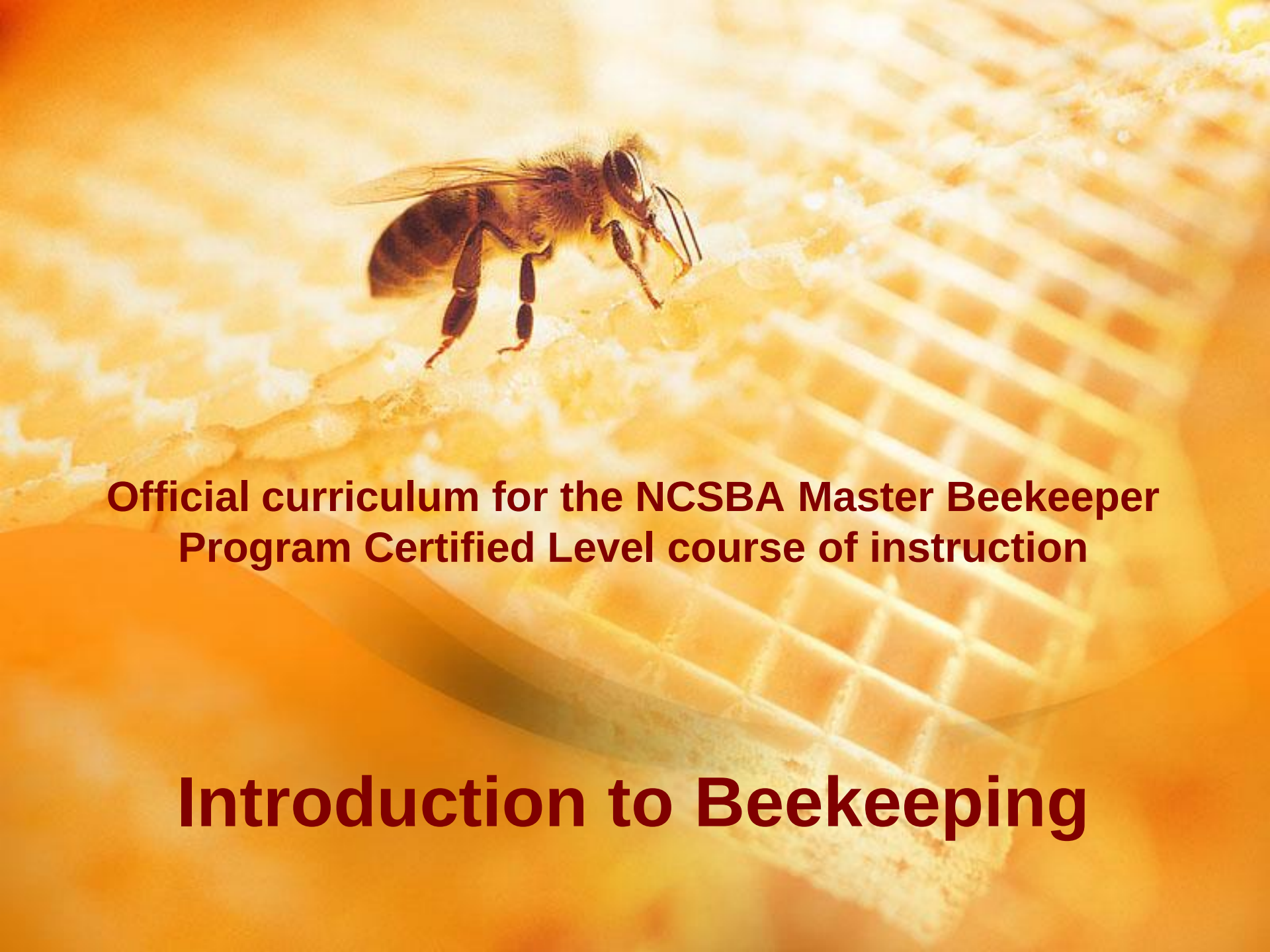


Official curriculum for the NCSBA Master Beekeeper Program Certified Level course of instruction

Introduction to Beekeeping

Topics

How involved Do you want To be?
History of Beekeeping
Who Can Keep Bees?
NCSBA Master Beekeeper Program

How involved will you be?

Our State Insect

- 17 states hold the Honey bee as their state insect

- *Apis mellifera* ~ Latin name (Honey-bearing bee)
  - **Apis ~ Bee**
  - **Meli ~ Honey**
  - **Ferre ~ to bear**

What Is Beekeeping?

- Skillful colony population management based on knowledge of predictable seasonal patterns of growth and decline
- Encouraging bees to follow their instincts
- Anticipate behaviors
- Science with an art form
- No substitute for experience

Foraging

- Minimum temperature – 46-50 F

  Ideal temp is 66 to 86 F

- Average flight speeds 12.5 going out - 15 on return

- Average 15 flights per day

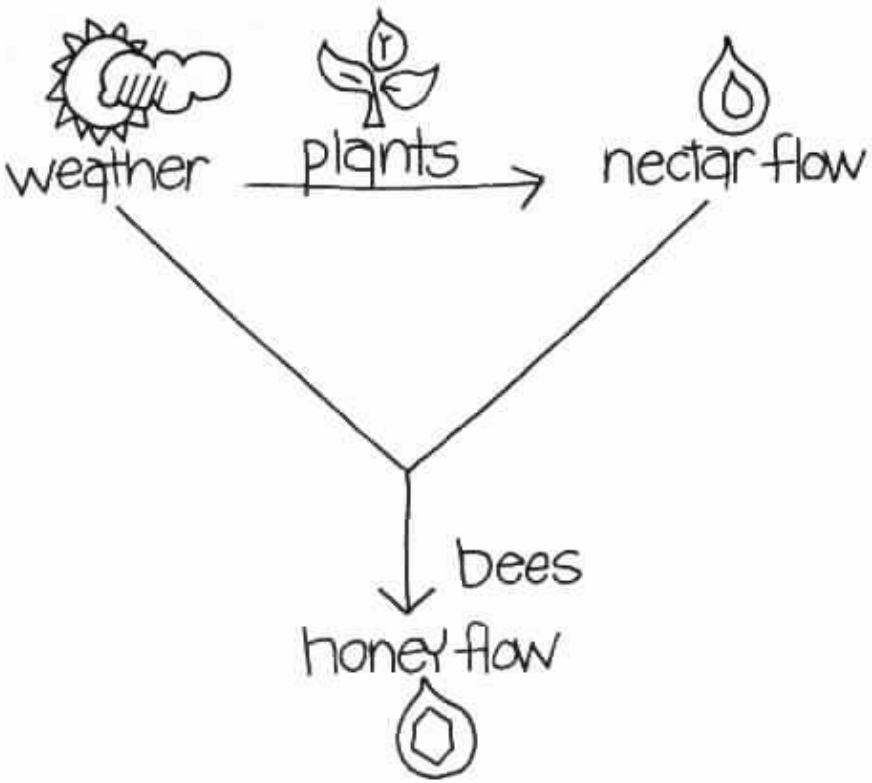
- Average 30 mins to 2 hrs

Bees forage for 4 items

- Nectar – carried in honey stomach (Crop)
- Pollen – carried in corbicula (pollen sac)
- Propolis – carried in corbicula (pollen sac)
- Water – carried in honey stomach (Crop)

Essence Of Beekeeping

- Population management of a social insect that seeks to maximize adult population to coincide with major nectar flow



Timing Is Critical

- Studies show:
  - **honey production = population of worker bees**
- Colonies slow to expand will consume stored reserves
- Colonies that swarm, lose 1/2 to 2/3 of the adult population suddenly and expend the honey flow on brood nest expansion

Nectar collecting

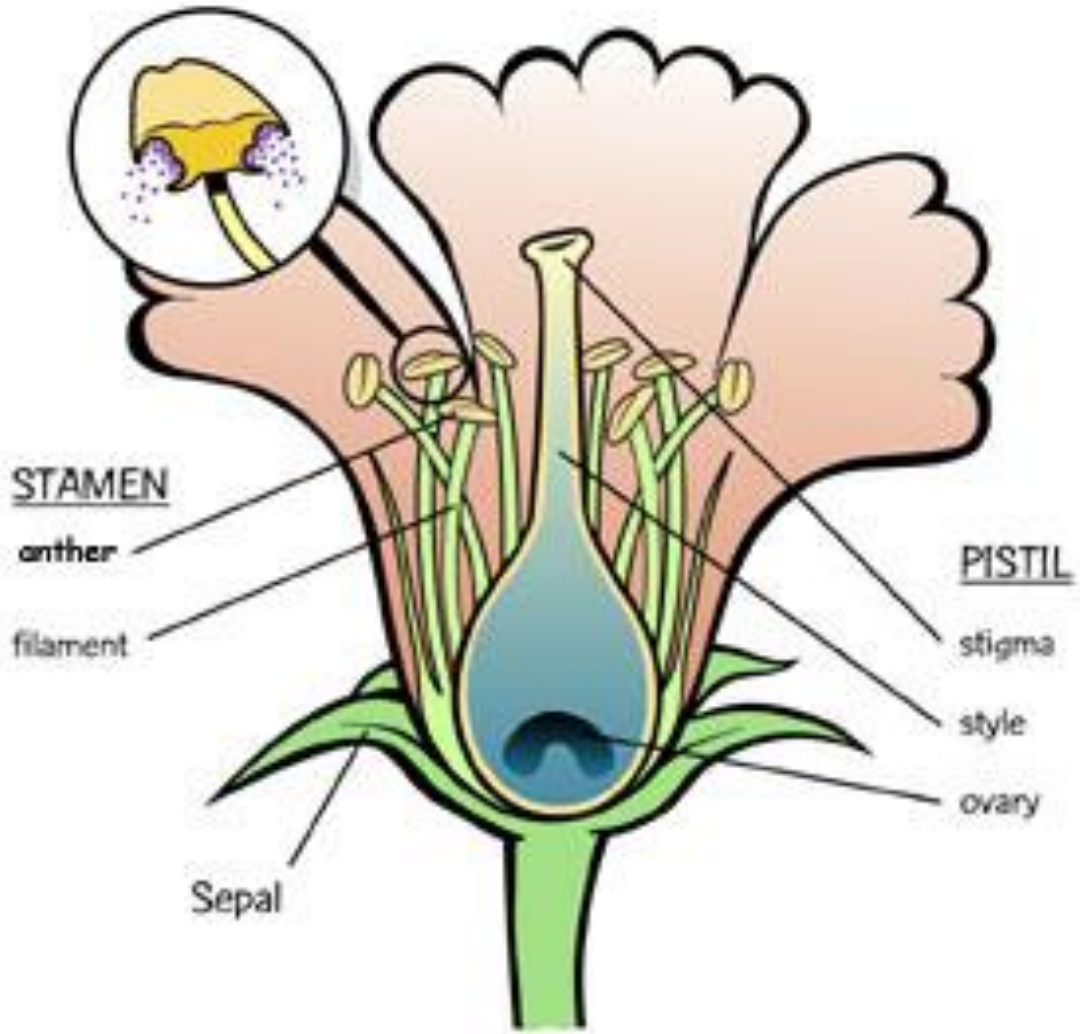
- Sugar concentration varies by flowers
- Wind, rain and damp weather have negative effect on nectar
- Drought limits length of bloom
- Sucrose is preferred over glucose, maltose and fructose
- Heaviest nectar secretion period known as the “honey flow”

“Bee Haver” Or “Bee Keeper”

- Bees don’t need daily care, but they do need regular care
- Extensive management or intensive management
- A hobbyist can do things a large commercial beekeeper simply does not have time to do

Pollination

- Pollination ~ the transfer of pollen to the female portion of the flower to start the process of fertilization and the production of fruit and/or seed



Pollination Process

Crops That Need To Be Pollinated

1. Fruits and Nuts
2. Vegetable and Melons
3. Field Crops

Economic Pollination Benefits In USA

One-Third

- Crops pollinated by honeybees

$47.1 Billion

- Bee-dependent crops (US)

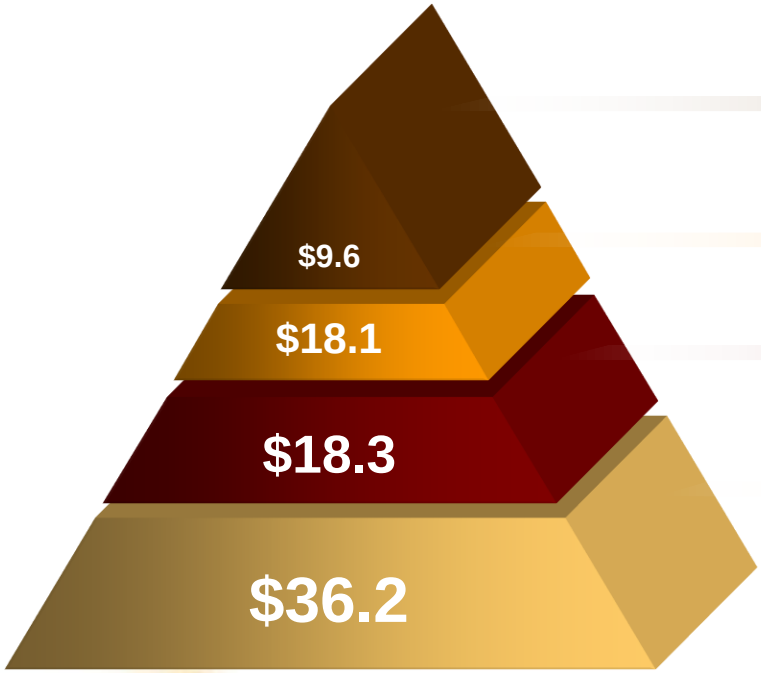
$14.6 Billion

- Honeybee pollination (US)

Honey bee Pollination

Top 4

Important Crops In NC



Watermelon ($9.6 M)

Blueberries ($18.1 M)

Apples ($18.3 M)

Cucumbers ($36.2 M)

$100 Million in NC every year

Effective Pollinators

- Consist of up to 60,000 individuals, while most other insects are solitary, or don't have as many the number of individuals
- Adults throughout the entire year
- Colonies can be moved
  - **Bumble bees are the exception**
- Management practices have been successfully developed to accomplish the needs of both man and bee
- Flower Fidelity

North Carolina Department of Agriculture & Consumer Services

- "BeeLinked" web site
  - www.ncagr.com/beelinked
- Site to help farmers locate beekeepers in their area
- "Bee check" web site
  - www.fieldwatch.com

Other Honey bee Products

Products from the hive

Pollen

Popular Health Supplement

- High protein content

Propolis

Bee Glue

- Antimicrobial properties

Beeswax

Beauty Products

- Cosmetic Industry

Honey

Alternative Sugar

- Allergy relief

Hive Products

- Honey
- Bees Wax
- Propolis
- Pollen

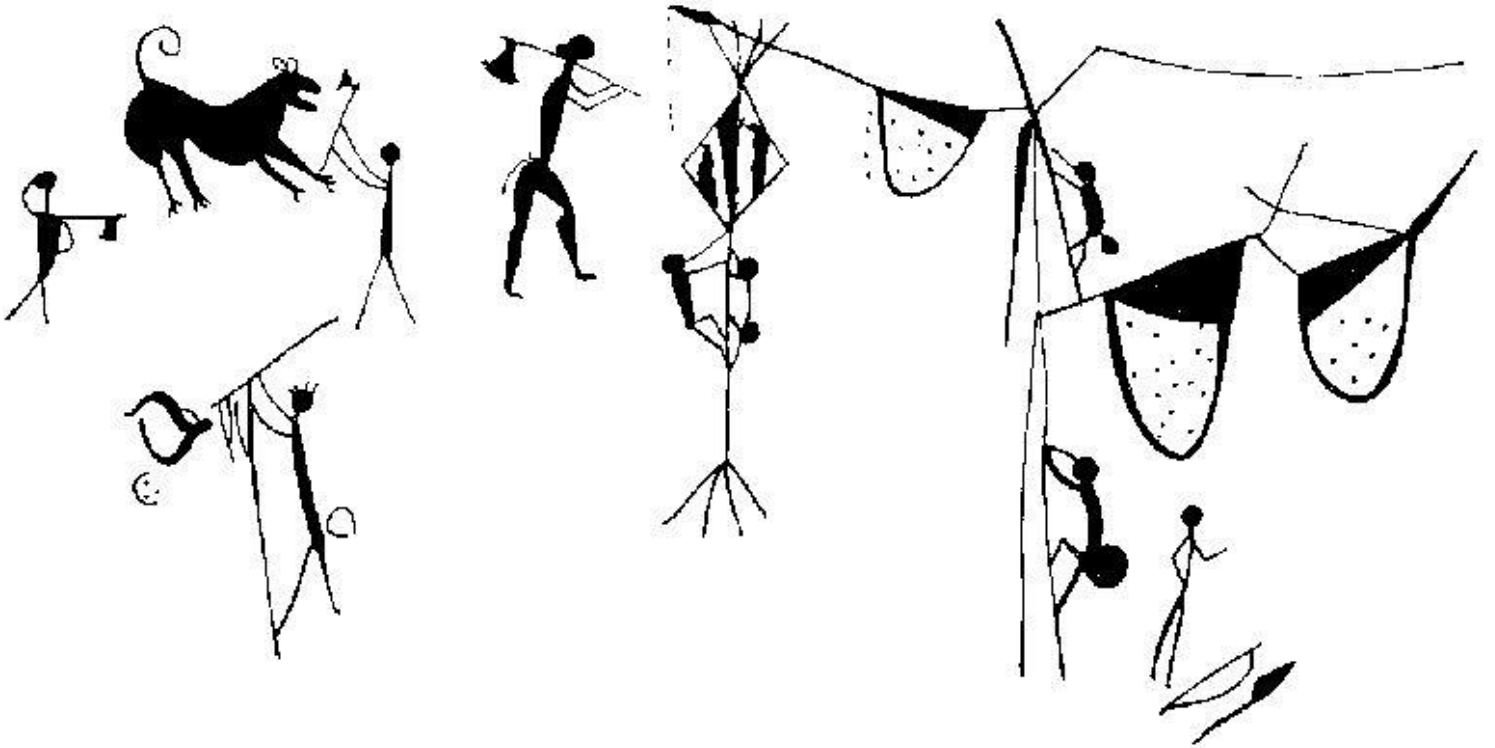
Total Economic Value

- Hive products
- Honey

- $4 Billion/year (USA)
- $10 Million/year (NC)
- How much is your hive worth?

History Of Beekeeping

- Domesticated longer then recorded history



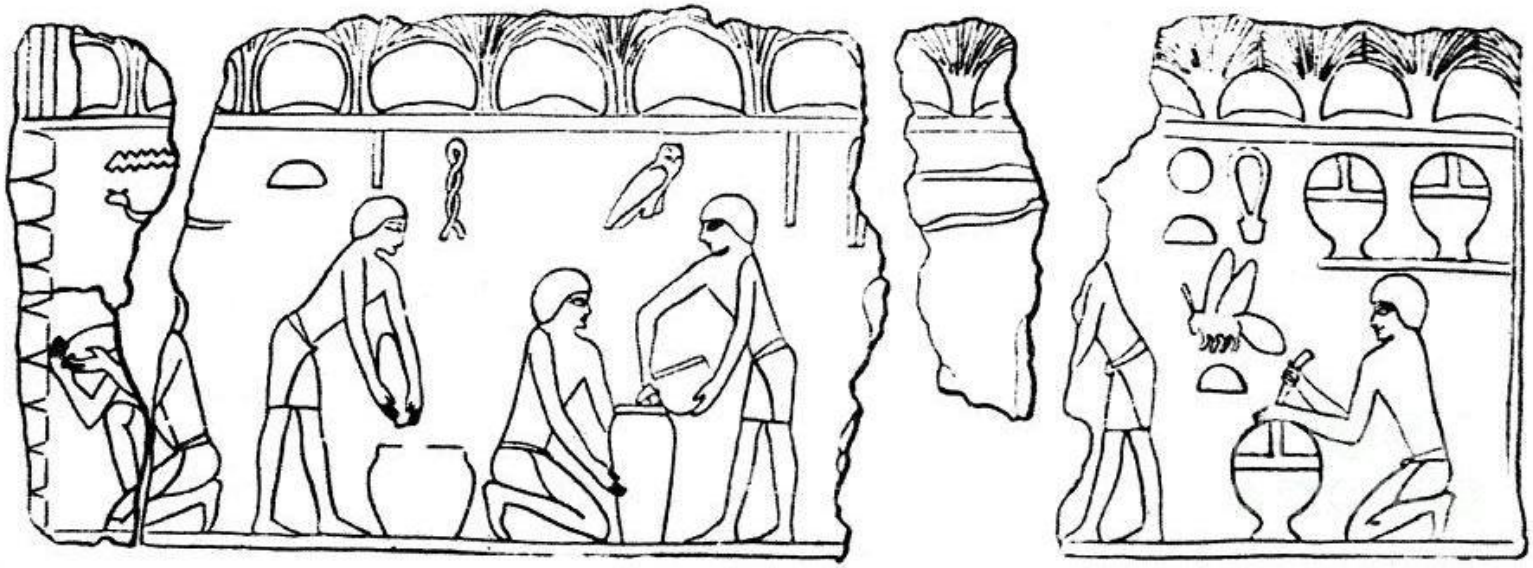
History Of Beekeeping

Source of refined sugars

(Sold by weight ((oz & grams)) not fluid oz.)

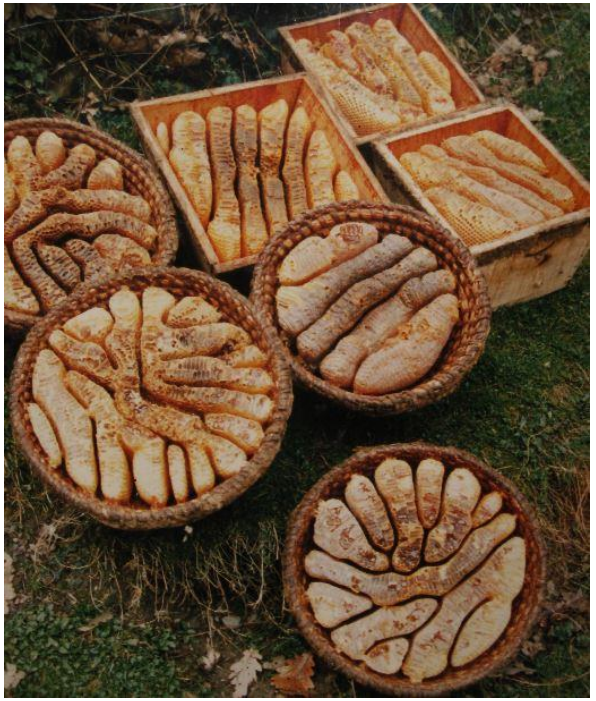
History Of Beekeeping

- Source of currency

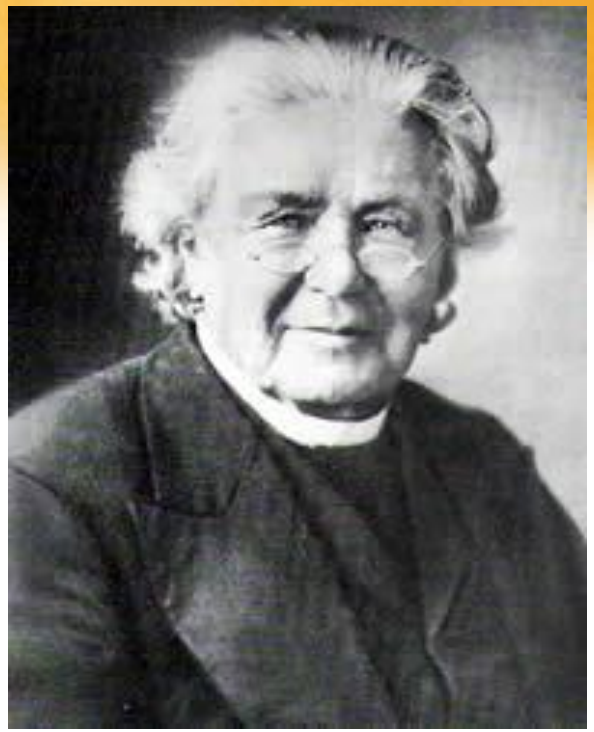


White Man's Fly

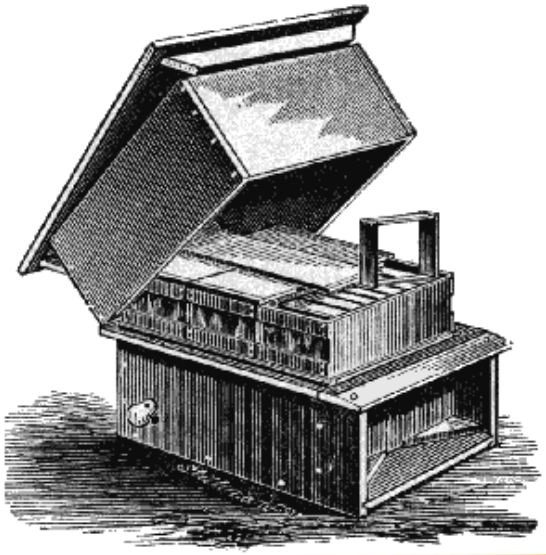
- Colonist brought honey bees to America ~ 1622 in skeps
- Settlers took the bees with them when they spread out across the US
- Bee gums ~ cutout section of hollow trees where bees were kept
- Illegal today to keep bees in these



Reverend Lorenzo Langstroth



- "Father of American Beekeeping"
- Discovered beespace
- Developed a hive that can be manipulated easily in 1851
  - **Movable frames**
  - **Langstroth hive**



Other Inventions (1800's)

- Honey extractor
- Beeswax foundation
- Queen excluder
- Widespread use of Italian Queens
- Disease reduction methods
- Queen rearing

Types of Beekeepers

	Commercial	Sideliners	Hobbyist
Number of Hives	300 +	25 - 299	1 - 24
Hours Required	Full Time	Part Time	Part Time
Sales	Support	Expand	Maintain

Residential beekeepers ~ those who keep bees in suburban areas

Pre-requisites to Beekeeping

- Information on honey bee biology

Learning in a beginners course gets you started

Pre-requisites to Beekeeping

- Information on honey bee biology
- Woodenware and bees

(Packages, nuc or swarms)

Pre-requisites to Beekeeping

- Information on honey bee biology
- Woodenware and bees
- Location (apiary site)

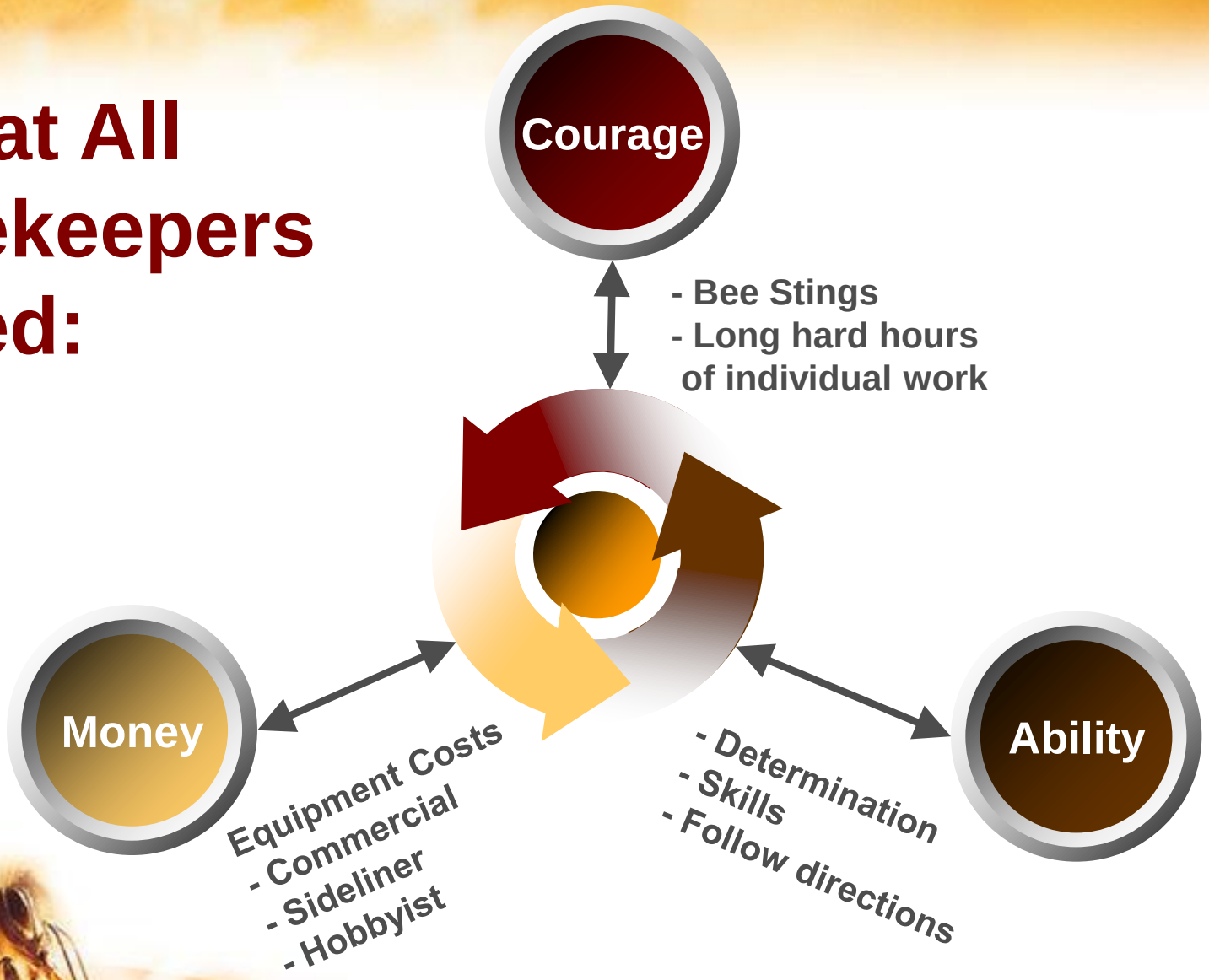
Pre-requisites to Beekeeping

- Information on honey bee biology
- Wooden ware and bees
- Location (apiary site)
- Personal Protective Equipment

Pre-requisites to Beekeeping

- Information on honey bee biology
- Woodenware and bees
- Location (apiary site)
- Personal Protective Equipment
- Commitment of time and interest
- Some Physical Ability

What All Beekeepers Need:



4 Step Process

Commit

Learn

Join

Become

Get Hives

Local and State Association

Buy books or videos

Beekeeping is a hobby that involves time and energy

NC State Beekeeper's Association

www.ncbeekeepers.org

- Created in January 11, 1917 in Winston-Salem
- 1st meeting 150 in attendance
- 40 paid $1.00 for annual membership
- Today is the largest beekeeping Association in the USA
- 2 annual meetings, Spring and Summer ~ 600 in attendance

NCSBA Master Beekeeper Program

- Created in 1982
- Purpose ~ promote beekeeping and acknowledge expertise
- Program is free to all resident of NC who are members of NCSBA

FYI, according to the info in the database today, the numbers are:

Active Membership	4,124
Active Certified	1,019
Active Journeyman	153
Active Master	96
Active Master Craftsman	10

Objective

- Provides:
  - **Forum for NC citizens to demonstrate expertise in beekeeping**
  - **Impartial assessment of skills, abilities and beekeeping knowledge**
  - **Pool of potential, qualified speakers at NCSBA meetings**
- Encourages:
  - **Public service**
  - **Independent or supervised research projects**
  - **Training more beekeepers**

Program Levels

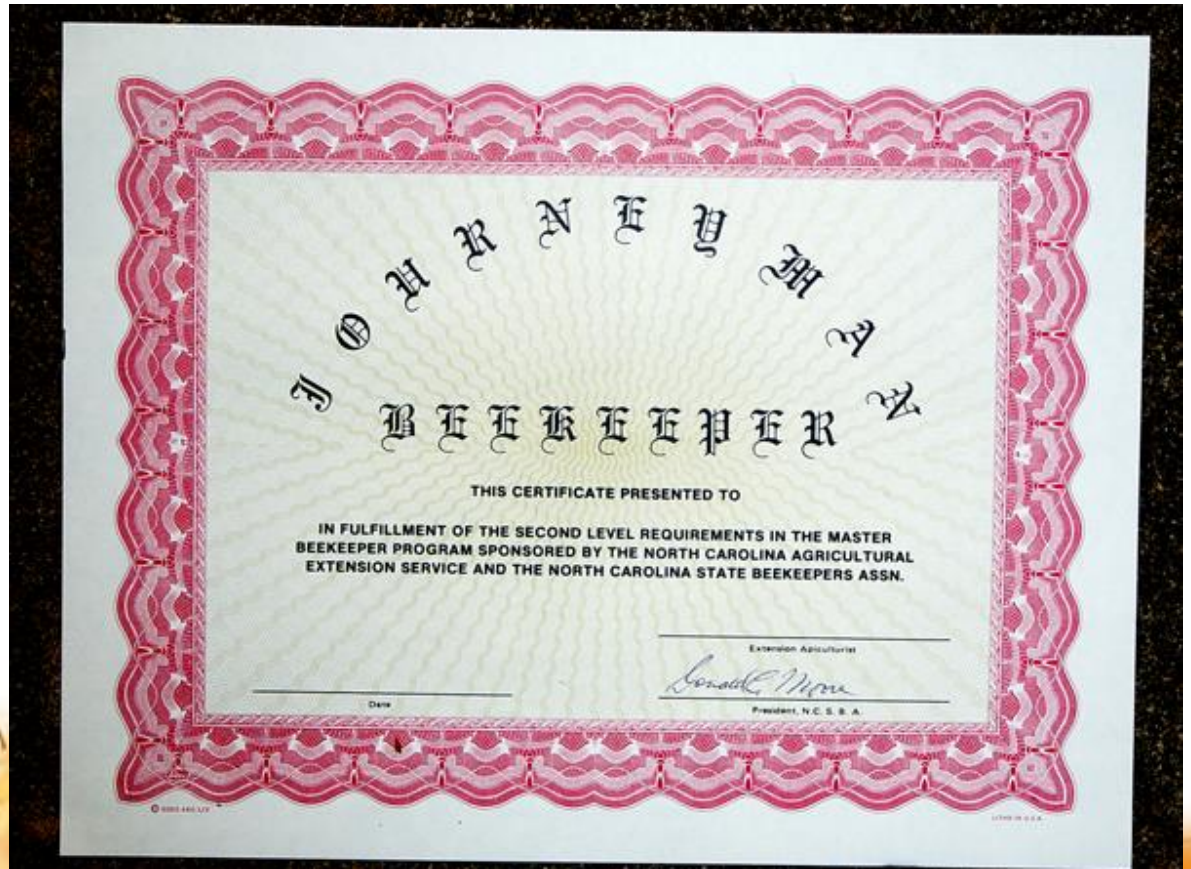
- Certified ~ entry level
  - **Basic knowledge of honeybees and bee management**
- Journeyman ~
  - **Beekeepers who have demonstrated competence in the craft**
- Master ~
  - **Beekeeper could function as a commercial beekeeper**
  - **Expertise in several sub-specialties of apiculture**
- Master Craftsman~
  - **Highest attainable**
  - **Demonstrated excellence in teaching, public service and honeybee management skills**

Certified Level

- A written test
- A practical test
  - **Involves manipulating a colony of bees**

Journeyman Level

- A written test
- A practical test
- 2 years of beekeeping experience
- 5 units of public service credit



Examples of Public Service

Church or Civic Group

Public School Groups

Local Festivals

Mentor Other Beekeepers

Master Beekeeper

- A written test
- A practical test
  - **Demonstrate excellence in 6 selected beekeeping sub-specialties**
- 3 years of beekeeping experience
- 10 units of public service credit

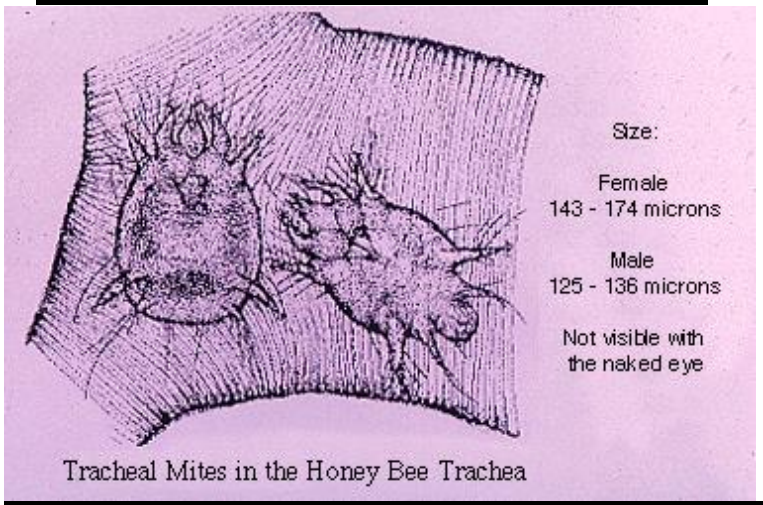
Examples of sub-specialties

Master Craftsman Beekeeper

- An oral examination
- 2 years as a Master Beekeeper
- Present a program at a state bee meeting
- Demonstrate communication skills
- Demonstrate excellence in a minimum of 7 additional sub-specialty areas
- Participate in an NCSU sponsored research project
- Earn 15 additional units of public service credit

Examples of Research Project

Mite Biology



Swarm Traps & Lures

Bee Stock Evaluation

Pesticide Use

Master Craftsman

Duties Of Master & Master Craftsman Beekeepers

- Present Master Beekeeper Program
  - **Local Chapters**
  - **Bee Schools**

- Present slide programs
  - **History of NCSBA**
  - **Growth of NCSBA**

Duties Of Master & Master Craftsman Beekeepers

- Administer tests
  - **Written & Practical exams**
  - **Certified, Journeyman & Master**

- Assist Local Chapters
  - **Programs**
  - **Short courses**
  - **Bee schools**
  - **Community service**

Master Beekeeper Committee

Robert Smith
Randal Austin
Co-chairs

Examination

All Levels

Records

Program

Participants

Develop

Program

Levels

Each Program Level

- Grade and develop all examinations

Maintain All Records

- Name
- Level Completed
- Current Status
- Current Contact Information

Curriculum

- Create Outline
- Hand out materials
- Teaching support for instructors

Introduction to Beekeeping ??????????