

MASS REARING INSECTS FOR THE PET FOOD INDUSTRY



Overview

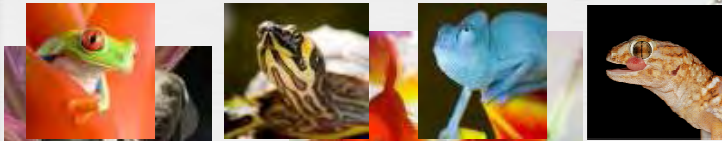
Clay Ghann
Ghann's Cricket Farm, Augusta, GA

- Pet Industry in USA – Reptile Segment
- Cricket Industry in USA
- Ghann's Cricket Farm – Fish Bait > Feeders
- Feeder Insects Commonly Produced
- Feeder Insect Industry Challenges



Pet Industry in USA

- 71.4M households (62%) own pets
- 4.7M households own reptiles



- \$153M per year on insects!



Reptile Shows



USA Cricket Industry



Aubrey Ghann, 1952



Ghann's Cricket Farm

Augusta, Georgia



Photo taken 1988



Cricket Brooder



Egg Laying



Collecting & Moving Babies



Production Environment



Providing cricket feed...

Dirty Jobs



Fish Bait vs Feeder Insects

Fish Bait – 100% Adults

Expensive & Risky

- High food & water consumption
- Labor intensive
- Short sales window (all one age, short shelf life)
- Weather related: rain = no fishing = no sales!

Resource Inefficient

- All brooders > adults (5 wk cycle)
- 460 brooders / wk @ 9k ea = 4.14M / wk
- **4.14M per wk, 215M per year**

Fish Bait vs Feeder Insects

Feeder Insects Allows...

Size Based Resource Allocation



Fish Bait vs Feeder Insects



Fish Bait vs Feeder Insects

Size Based Resource Allocation

Cheaper & Less risk

- Less food & water consumption
- Lower labor cost to provide food and water
- Shift sales window (sell next week at larger size)
- Weather independent – reptiles eat in the rain!



Fish Bait vs Feeder Insects

Size Based Resource Allocation

More “CHIRP” for the Buck (resource efficient)

- 30% brooders > adults (5 wk cycle)
 - 138 brooders / wk @ 9k = 1.24M / wk = 64M / yr
 - 30% brooders > 3/4” (4 wk cycle)
 - 172 brooders / wk @ 13k = 2.24M / wk = 116M / yr
 - 30% brooders > 1/2” (3 wk cycle)
 - 230 brooders / wk @ 23k = 5.3M / wk = 275M / yr
 - 10% brooders > 1/4” (2 wk cycle)
 - 115 brooders / wk @ 34k = 3.9M / wk = 203M / yr
- **658M / yr – 3x Fish Bait model**



Feeder Insects Commonly Produced

Acheta Domesticus

House Crickets

- The BEST live food available!



Feeder Insects Commonly Produced

Tenebrio molitor (Mealworms)

- Close second to crickets in popularity
- Also for birds – caged and wild
- Cheaper to produce vs crickets
- Sell cheaper vs crickets



Feeder Insects Commonly Produced

Zophobas morio (Superworms)

- Harder for animals to digest
- More expensive vs crickets



Feeder Insects Commonly Produced

Galleria mellonella larvae (Waxworms)

- Harder to produce vs crickets
- More expensive vs crickets
- Fatty, good for adding pre-hibernation mass



Feeder Insects Commonly Produced



Drosophila spp. (Fruit Flies)

- Sold as a culture, reproduce in the tube
- Compete with pinhead crickets – I HATE EM!



Feeder Insects Commonly Produced

Hermetia illucens larvae (Phoenix Worms)

- High in calcium
- More expensive vs crickets
- Some market resistance – “a maggot?!”



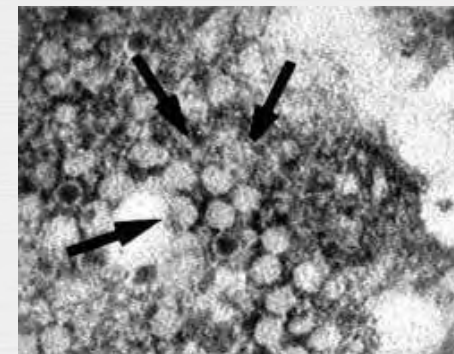
Industry Challenges

- Gotta make a PROFIT!
- Animal Rights Activism
 - Animal Aid
 - Animal Defense League
 - PETA
- Regulation
 - Permits for animals & insects
 - Strict packaging & handling guidelines



AdDNV

Acheta domesticus Densonucleosis Virus



AdDNV

95% Mortality



Alternative Species?

Gryllus assimilis



AdDNV

Acheta domestica Densonucleosis Virus

Can Anyone...

HELP?

