

The Sustainable Bee Club Using Research and Development Funds to Promote Local Bees & Queen Rearing



National Academies
of Science

June 30th, 2014

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In gratitude to our friends- "If I have seen further, it is by standing on the shoulders of giants." (Sir Isaac Newton)

- ❑ A more sustainable beekeeping model was inspired and aided by a few beekeepers generous enough to share their ideas & experiences
 - Adam Finkelstein (VP Queen Bees, MD)
 - Mike Palmer (French Hill Apiary, VT.),
 - Billy Davis & Sustainable Honeybee Project (No. VA)
 - Pat & Jim Haskell (Massanutten Mt. Apiary, No. VA)
 - Erin MacGregor Forbes (Overland Apiaries, ME)
- ❑ PWRBA Visionaries, SARE & Crop Specialty Participants
- ❑ USDA CREES SARE, USDA AMS SCBGP, VDACS

Prince William Regional Beekeepers (PWRBA)- “The little club that could...”

From This



To This



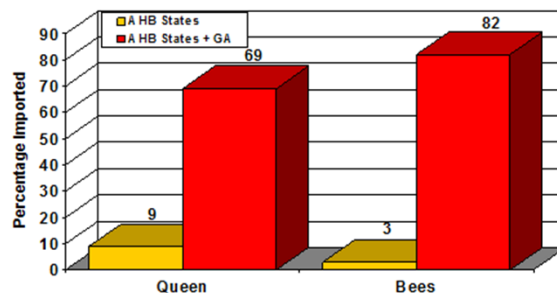
And This...



Setting the Context- How Sustainable Beekeeping fit in to Statewide efforts in VA

- ❑ **Plight of Virginia Beekeepers Study**
- ❑ State Senate Joint Resolution requested VDACS study VA beekeepers, report on problems and suggest initiatives to stimulate recovery of beekeeping industry (2006)
- ❑ Selected Findings (SD #20 2006):
 - Managed beehives decreased 50% since mid 1980's
 - **Average colony loss 30% (past 5 years)**
 - Honeybee colony health major reason for loss (mites, nutrition, nosema, etc.)
 - **Replacement queen bees are purchased out of state and most often from states with AHB**
- ❑ Result of Study: Funded Cooperative Extension- 4 initiatives
 - Promote Integrated Pest Management (IPM)
 - **Support Regional Queen Rearing**
 - Promote use of honeybees by farmers for pollination
 - Implement risk management programs for AHB

Origin of Out of State Queen and Package Bees to Virginia



Haskell, J. (2011). *Club-Based Nuclei Programs in Virginia 2011*. Presentation to the North American Beekeeping Federation (ABF) Serious Sideline Symposium, January 6, 2011. Data collected by Virginia Department of Agriculture and Consumer Services (VDACS) Queen and Nuc Risk Assessment survey in 2009.

Vision of Sustainable Beekeeping

- ❑ **Locally Available & More Sustainable source of bees**
 - For new students and club members- eventually all beekeepers
- ❑ **Make bees from existing bees**
 - Use locally/regionally reared queens from existing well performing colonies &/or "store bought" queens with hygienic traits
- ❑ **Provide ongoing education, training and mentoring**
- ❑ **Promote Integrated Pest Management (IMP)**
 - Organically based methods as much as possible
- ❑ **Provide outreach and education to the community**
- ❑ ***Reduce dependence & Stop Club Package Ordering***

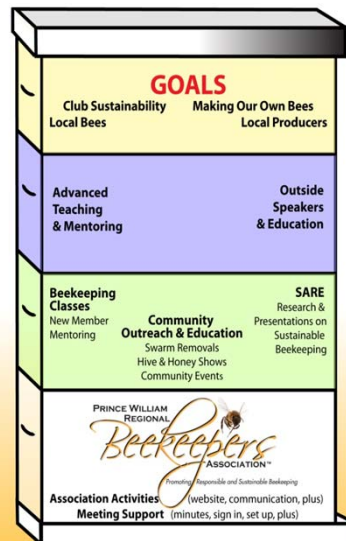
Club Graphic Emphasizing Sustainability



Everyone Can Play a Role...

**Where Do
YOU
Fit in
Our Colony?**

**How Do You See the Path
Forward To Our Goals
of Sustainability?**



How did we get there?

- **SARE Producer Grant**
- Competitive grants (\$1,000 - \$15,000) to conduct **research**, marketing and demonstration projects and share the results with other farmers and ranchers.
- Part of USDA, Cooperative **Research**, Education, and Extension Service (CREES)
- (2009) **Promoting Sustainable Beekeeping Practices through local production of nucs (nucleus colonies) and local queen honeybees**
- **Specialty Crop Block Grant Program (SCBGP)**
- To enhance the competitiveness of specialty crops
- Applications – combined through State (VDACS)
- **“Development “ Funds?**
- (2012) **Prince William Regional Beekeepers Queen Rearing Group**

What did we set out to do?

(Objectives)

- 1) Increase the knowledge & skill of local beekeepers in producing nucleus colonies (nucs) from existing hives & test the viability of hives made from locally produced nucs to those made from packaged bees
- 2) Engage in the study of queen rearing & initiate local queen rearing efforts (SARE) & Establish queen rearing operations and track performance (SCGP).
- 3) Promote sustainable beekeeping practices overall by emphasizing integrated pest management (IPM) in educational & outreach

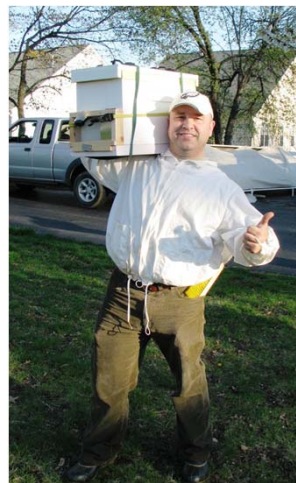
How would we know when we got there?

- 1) Will we become more comfortable making & using nucs for management, increases and/or overwintering?
- 2) Will colonies made from nucs develop into different, stronger, and/or more viable colonies?
- 3) **Will we be able to provide nucs out of our apiaries in increasing numbers for new beekeeping students in 2010 and beyond?**
- 4) **Will we become more proficient rearing our own queens?**

Happy beeks with our first Spring nucs



Photo credit - Keith Fletcher



Some of our Nucs



Photo Credit: Tina Kestner



Photo credit- Tom Taylor

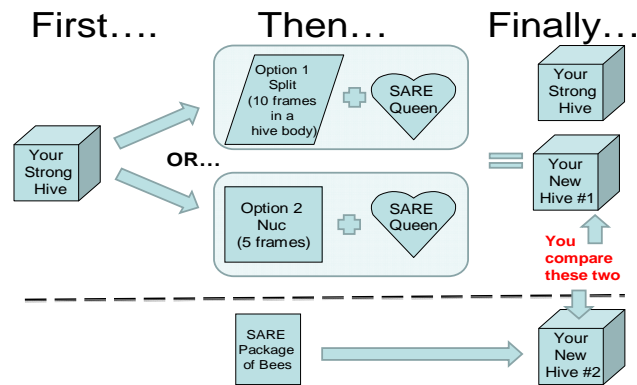


Photo credit- Keith Fletcher

Activities

- 1) Pilot Project
- 2) The "experiment" - Compared Colonies started from Nucs to colonies started from Packaged bees
- 3) Added Task: Overwintered Nucs
- 4) Queen Rearing
- 5) Tracking Queen/Colony Performance
- 6) Educational Programs
- 7) Outreach

The SARE “Experiment”



Compare the viability of colonies made from locally produced nucs (2 queens sources) to Colonies made from imported packaged bees (GA)

How we did we organize & why?

- ❑ **Group A** nucs started in mid April with *commercially produced non-local queens*
- ❑ **Group B** nucs started with *newly mated locally produced queens* (VP Queen Bees)
- ❑ **Group C** purchased nucs with *locally reared queens overwintered in a hive*, and pulled to create a nuc.
 - Designed to include beekeepers that experienced colony loss or had colonies too weak to produce nucs but still wanted to participate in the project.

A few of us



Photo credit G.H. Wilson III



Education Programs & Field Days (2008-2011)

1. The Sustainable Apiary (Overwintered Nucs) (2011)
2. Comparison of Honey Bee Colony Strength & Survivability between Nuc & Package Started Colonies & Practical Backyard Queen Rearing – Our “Sister SARE Project” (2011)
3. Nucs Nuts and Bolts (2011)
4. Nucology Expanded (2010)
5. Overwintered Nucs (2010)
6. Queen Rearing Basics (2010)
7. Installing Nucs Field Day (2010)
8. Overwintered Nuc Survival Assessment Field Day (2010)
9. Making Nucs- How To (2x) (2009)
10. Queen Rearing Class and Field Day (2009)
11. Transferring overwintered nucs into full hives Field Day (2009)
12. The Plight of Virginia Beekeepers Study and VA Sustainability Efforts with VA State Apiarist (2009)
13. Nuc Management (2009)
14. Queen Rearing Class and Field Day (2008)
15. Introduction to the PWRBA SARE grant (2008)

What data did we collect?

Basic Colony Assessment

□ What was it like out?

- Weather, bloom, time of day

□ What did you see?

- Key Indicators of hive health & productivity
- Temperament, Brood amt. & pattern, disease, etc.

□ What did you do?

- Feed, move, treat, etc.

□ Summary and Recommendations

- What did you observe and what do you need to monitor, plan for, etc.

How did the experiment turn out?

First Year Survival

Package Started Hive		Nuc Started Hive	
Pkg. n = 22	Pkg Hive survival 2009/2010	Nuc n = 23	Nuc Hive survival 2009/2010
A	8	A	7
B	4	B	7
C	3	C	5
Total	15	Total	19
	68%		83%

Second Year Survival

YEAR 2 SURVIVAL (of those that survived Year 1)			
Package Started Hive		Nuc Started Hive	
Pkg. n = 22	Pkg Hive survival 10/11	Nuc n = 23	Nuc Hive survival 10/11
A	4	A	6
B	2	B	6
C	0	C	2
Total	6	Total	14
	40%		74%

1st and 2nd Year Survival

Package Started Hive			Nuc Started Hive		
Pkg. n = 22	Pkg Hive survival 09/10	Pkg Hive survival 10/11	Nuc n = 23	Nuc Hive survival 09/10	Nuc Hive survival 10/11
A	8	4	A	7	6
B	4	2	B	7	6
C	3	0	C	5	2
Total	15	6	Total	19	14
	68%	40%		83%	74%

Overwintered Nucs Success

PWRBA Sustainable Agriculture Research and Education (SARE) Grant - Added Task: Overwintered Nucs		
Year	2008/2009	2009/2010
Goal	Successfully overwinter nucs in 2008 and provide nucs for new beekeepers and/or bee club members in Spring 2009	Successfully overwinter nucs in 2009 and provide nucs for new beekeepers and/or bee club members in Spring 2010
Queen Source	Locally produced queens from VP Queen Bees	Locally produced queens- VP Queen Bees & SARE Queen project
Number of participants	5	5
Nucs Produced	10	34
Nuc Survived	8 (80% survival)	26 (75% survival)
Nucs made available to others	4	19

Challenges & Limitations of the Data

- ❑ Consistent record keeping and data submission
- ❑ Hive set up and start up varied
- ❑ Experience and Skill level
- ❑ Different Management Style (food, manipulations, treatment, etc.)
- ❑ Forage availability
- ❑ Weather

Was it all due to “Beekeeper Error” ???

Related Efforts and Data

- ❑ Marin County, CA annual colony census
- ❑ Overland Apiaries (Maine) SARE project compared two years of data
 - colonies started from packages
 - packaged hives requeened w/ regional queens
 - colonies started w/ overwintered nucs & regional queens
- ❑ Beekeepers of Northern Virginia (BANV) queen survey
 - Colony survival based on queen source

This Could be YOU!



Photo credit- Lloyd Spear



Photo credit- Michael Young, MBE

Happy recipients of SARE efforts



Photo credit- G.H. Wilson III



How have we done since?

Sustainability of efforts - Rocking & Rollin!

- ❑ **Reduced dependency on packaged bees by 50% or more (New Beek class of 2010, 2011, 2012, 2013) & 100% class of 2014**
- ❑ Provided nucs w/ regionally raised queens to beekeepers
- ❑ Developed new nuc makers within club
- ❑ Developed nuc guidelines
- ❑ Developed Queen Producers
- ❑ Provided queen cells & virgin queens and queens to club members
- ❑ Provided ongoing education on nucs & queen rearing
- ❑ Integrated "Ways to Get Bees" into intro. Bee class
- ❑ Overwintered Nuc Incentive Program (2012)
- ❑ Crop Specialty Grant - Queen Rearing & Backyard Breeding (2013-15)
- ❑ Nuc Literacy and Mentoring Program (2014) "Each One Teach One" (conducted by a separate organization)

Put beekeeping with nucs on the “big stage”- Part of Agriculture/The New “Normal”



The places you'll go



Photo credit G.H. Wilson III

NAS Workshop Questions

- 1) If your organization received a survey asking whether it did research and development, would the organization report on your research project?
 - Yes/No/Maybe- depends who receives the survey and if they share it broadly.
 - Core Group YES
 - Not other research but "development" work
- 2) Have you done other research?
- 3) Do you call it a research project or use different language?
 - R in SARE = Research, but most identified with "**Experiment**" "**Test**" "**Study**" or "**Project**" (similar in other agricultural pursuits)
 - Not strict research, but included data collection
 - Had a hypothesis, data, results, published
 - Created new knowledge in group to enable product delivery

NAS Workshop Questions cont.

- 4) Could the organization separate the resources used on this project from the other resources used by the organization?
 - Yes. All grant funding was/is held in separate accounts from organization operating funds

What do I think?

- "Never doubt that a small group of thoughtful, committed, citizens can change the world. Indeed, it is the only thing that ever has." *Margaret Mead*