



AFB HOW FAR HAS IT SPREAD

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Agricultural Research Council

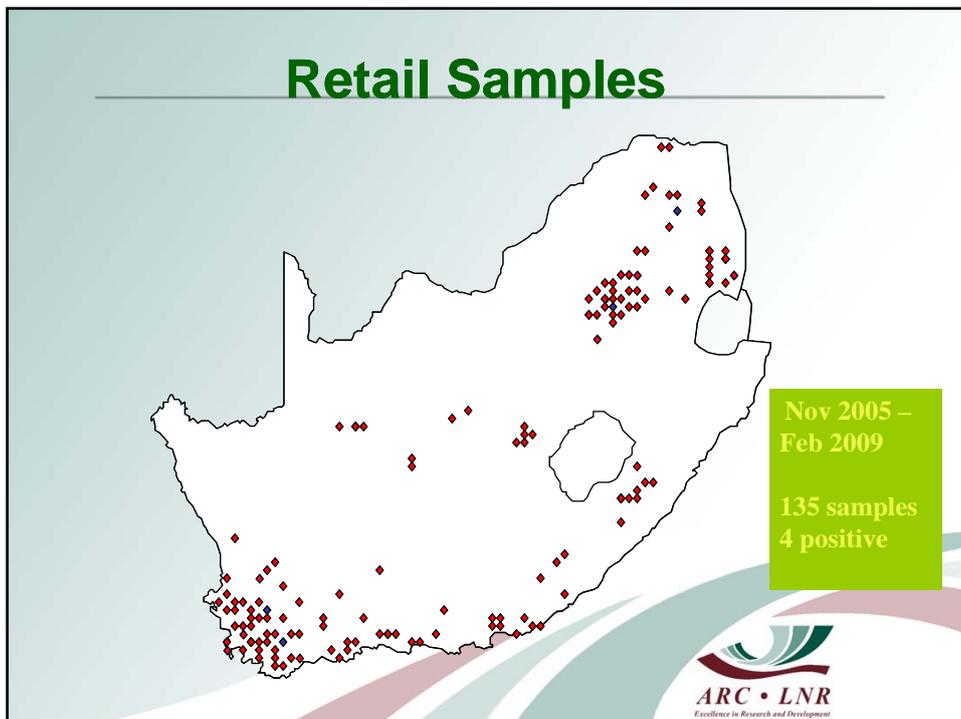
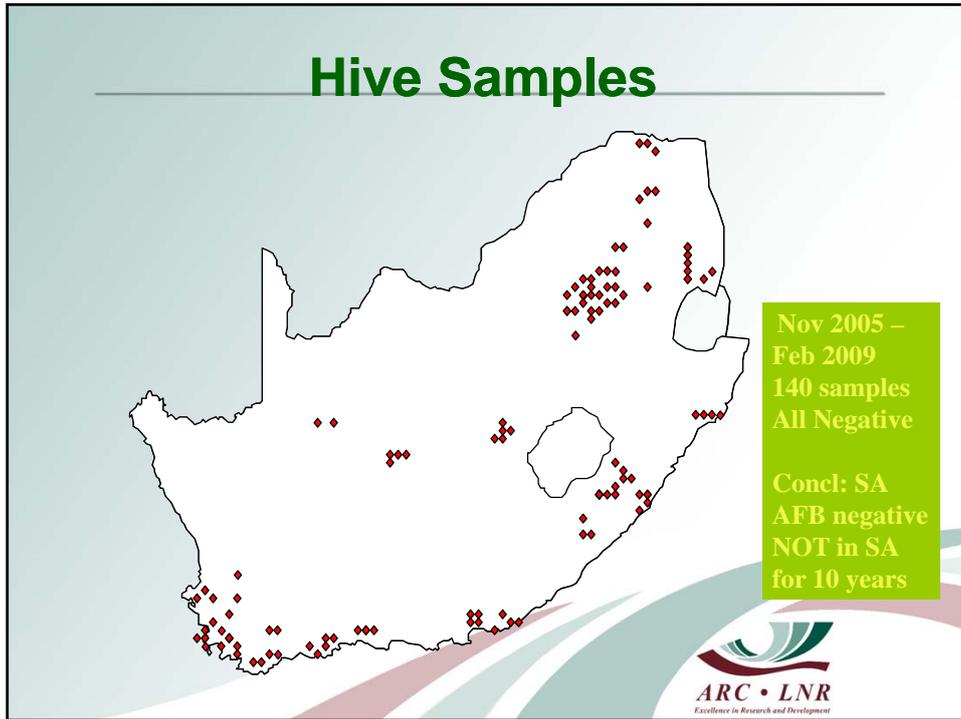
Plant Protection Research Institute



AFB in Southern Africa



- **AFB was never found previously in sub-Saharan Africa**
- **Only in retail honey samples, including in SA**
- **Because of a positive retail result (Hansen et al 2003), have been surveying honeybee colonies and retail honey all over SA since 2006; as a part of DoA project**



AFB Found



- December 2008; report from Cape Town of AFB in colonies
- Originally thought to be EFB
- Samples collected in January 2009
- Positive lab confirmation in February 2009



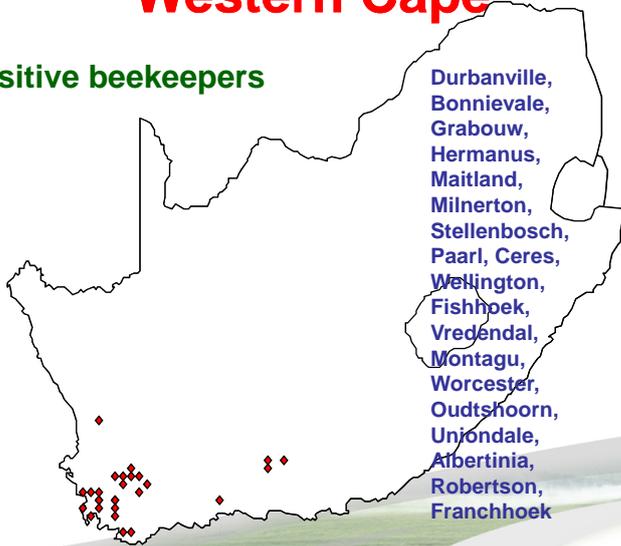
Nationwide survey



Clinical Infected Colonies in the Western Cape

35 positive beekeepers

Durbanville,
Bonnievale,
Grabouw,
Hermanus,
Maitland,
Milnerton,
Stellenbosch,
Paarl, Ceres,
Wellington,
Fishhoek,
Vredendal,
Montagu,
Worcester,
Oudtshoorn,
Unjondale,
Albertinia,
Robertson,
Franchhoek



Sub-Clinical Infected Colonies

Heilbron

Douglas





Douglas

All inspected hived in 3 apiaries didn't show any AFB symptoms

The hives from which the original samples were collected has not been marked

Hives were moved to other areas (pollination) before the results were obtained from the lab

Honey collected during the visit tested negative for AFB

Samples sent for testing at the later stage from that area all tested negative for AFB



Conclusion

At present AFB confirmed only

in the Western Cape area



September 2009

Number of apiaries	Number of infected apiaries	Number of colonies	Number of infected colonies	Action taken
9	2	76	6	Sterilise, isolate
		650	11	Irradiate
78	48	852	101	Destroy, irradiate
14	2	96	5	None
32	9	380	65	Shook, sterilise, destroy
13	5	132	47	Shook, sterilise, destroy
		1726	294	Isolate, OTC

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January 2011

Number of apiaries	Number of infected apiaries	Number of colonies	Number of infected colonies	Action taken
9	0	80	0	None
		699	9	None
81	12	1024	12	Destroy, irradiate
17	0	104	0	None
33	1	412	4	None
13	1	125	2	None
		1800	19	none

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And the rest of Africa?



ISOLATION OF *PAENIBACILLUS* LARVAE, CAUSAL AGENT OF AMERICAN FOULBROOD FROM ORGANIC HONEY COLLECTED IN ZAMBIA

The Government of Zambia,
Department of Veterinary and Livestock
Development



Zambia

In July 2009

97 honey samples

collected from all geographical areas in Zambia



Were delivered to the Bacterial Diseases Unit

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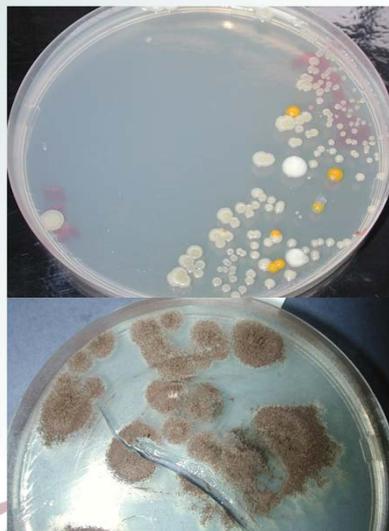
Zambia

Bacterial growth was observed on J-agar plates inoculated with all honey samples.

Bacteria growing on J-agar plates did not resemble *P. larvae*. Colonies were usually much bigger than that of *P. larvae*.

Apart of bacteria, plating of 51 samples showed some fungal growth

Bacterial growth was swabbed from J-agar plates of all 97 samples on which such growth was present and used as templates in the PCR



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Zambia

Bio-PCR results

All samples negative



Zambia

CONCLUSION

Paenibacillus larvae subsp. *larvae*
causal agent of American foulbrood
WAS NOT isolated or detected
from the ninety 97 honey samples from Zambia
tested at the ARC,
Plant Protection Research Institute,
Bacterial Diseases Unit.





**ISOLATION OF
PAENIBACILLUS LARVAE,
CAUSAL AGENT
OF AMERICAN FOULBROOD
FROM ORGANIC HONEY COLLECTED
IN
SWAZILAND**

The Swaziland Honey Council



Swaziland

In January 2009, Mr. Dermot Cassidy, the technical advisor to the Swaziland Honey Council, delivered 97 honey samples collected in Swaziland to the ARC-PPRI, Bacterial Diseases Unit.

This honey samples were tested for the presence of *Paenibacillus larvae*, causal agent of American foulbrood.



Swaziland

Honey samples were collected in three geographical areas (Murdoch, 1968) and five ecological zones (Acocks, 1988) within Swaziland, named:

- Zululand thornveld (7 samples),
- Lowveld (10 samples),
- Lowveld sour bushveld (20 samples),
- Northeastern mountain sourveld (35 samples)
- Piet Retief sourveld (25 samples).



Swaziland

Approximately a 20² cm section of the comb was cut from each examined brood and placed in a paper bag. Bags were kept at room temperature until needed. **No visible symptoms of AFB were observed in sampled broods.**

From the same hives, **honey** was also collected for testing. Sixty to 80 grams of honey was removed from each hive and placed in plastic, screw-cap jars. Colour of honey was from light yellow to dark brown and consistency from liquid to solid.

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Swaziland

Bacterial growth was observed on J-agar plated with 39 samples.

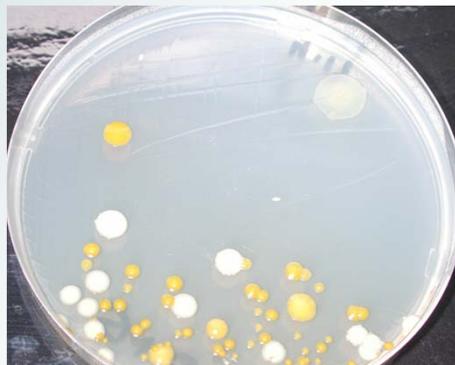
Fungal growth was observed on J-agar inoculated with four honey samples

Bacterial or fungal growth was not observed when J-agar was inoculated with 40 honey samples

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Swaziland

Bacteria growing on J-agar plates did not resemble *P. larvae*. However from three samples, almost pure culture of yellow, round colonies was isolated. Colonies were much bigger than that of *P. larvae*. Nine colonies were purified on J-agar for additional testing.



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Swaziland

API 50CHE profiles of A, *P. larvae* LMG 9820^T (synonym *P. larvae* subsp. *larvae*, type strain) and B, *P. larvae* LMG 15974^T (synonym *P. larvae* subsp. *pulvifaciens*, type strain)



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Swaziland

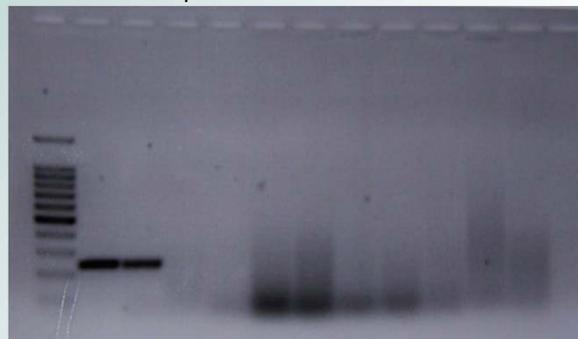
API 50CHE profiles of 3 yellow isolates from Swazi honey



Swaziland

Bio-PCR results

1 2 - positive controls



Swaziland

CONCLUSION

Paenibacillus larvae subsp. *larvae*
causal agent of American foulbrood
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And the rest of Africa?????



