



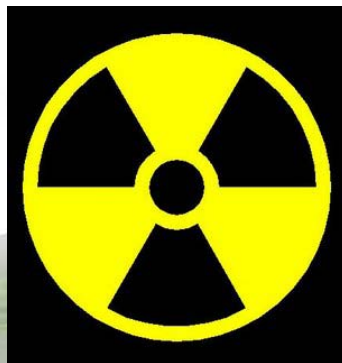
# AFB in South Africa – how to make sense of it?

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# AFB in Africa

- Only one report of clinical AFB ever in sub-Saharan Africa; by Wolfgang Ritter (1985?), a sample from South Africa
- Keeping AFB out was the major reason why there is compulsory irradiation of bee products imported into SA (Ag Pests Act 1983, R1013 of 26 May 1989)
- Survey of 57 apiaries in South Africa in 1997-1998 – were all negative for AFB (Davison et al 1999)
- Honey samples collected by Fries & Raina (2003) from Kenya, Uganda, Tanzania, Senegal, South Africa and Zimbabwe were all free of AFB

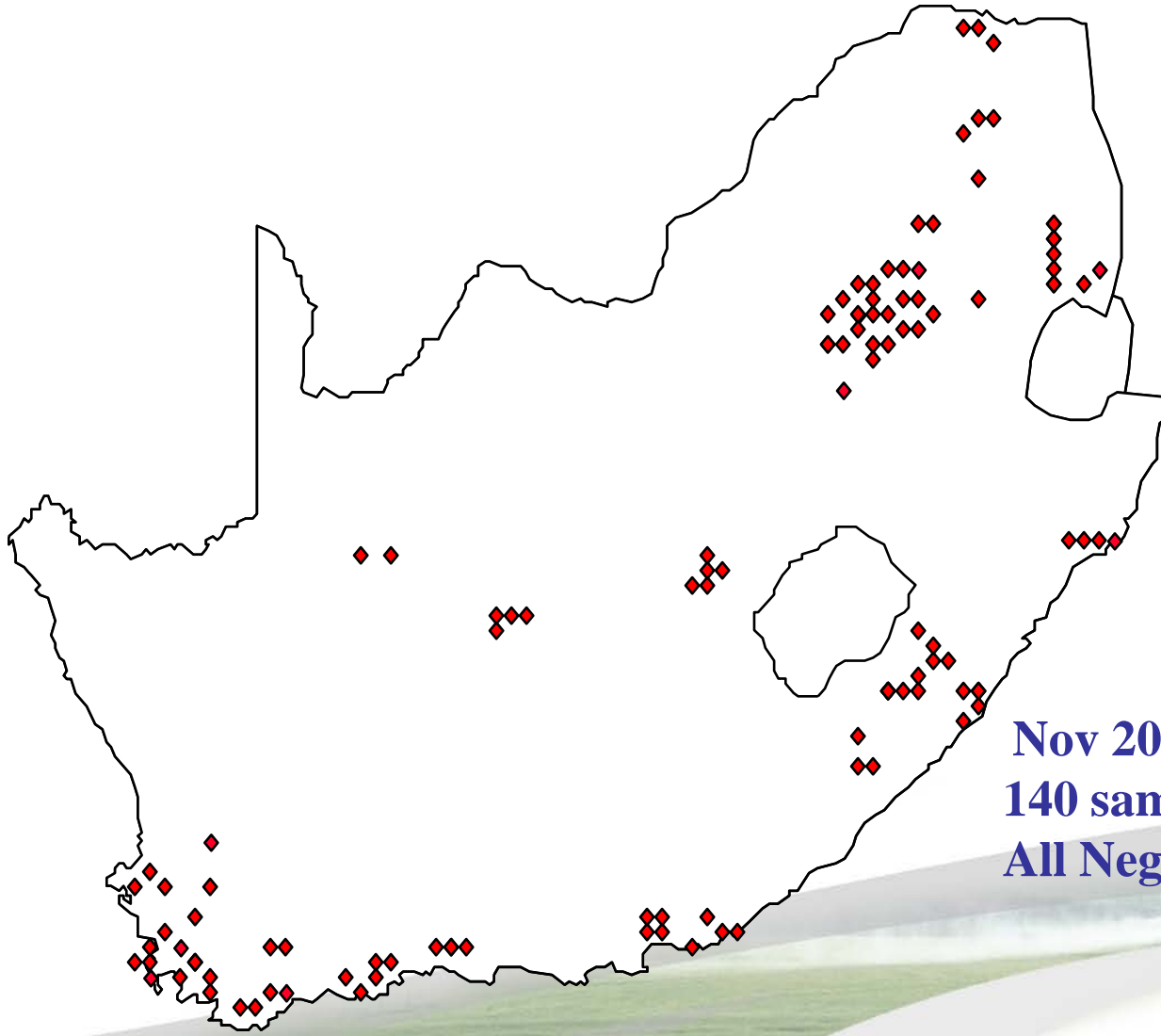


# AFB in Africa

- But Africa MUST have been (and is being) continually exposed to AFB
- Because bees from all the world brought into Africa; and honey from all over the world; only South Africa has irradiation of bee products
- Confirmed by Fries & Raina (2003) and Hansen et al (2003) – imported honey samples on sale in African countries positive for AFB
- Survey of South Africa in 2006-2009 to assess AFB situation

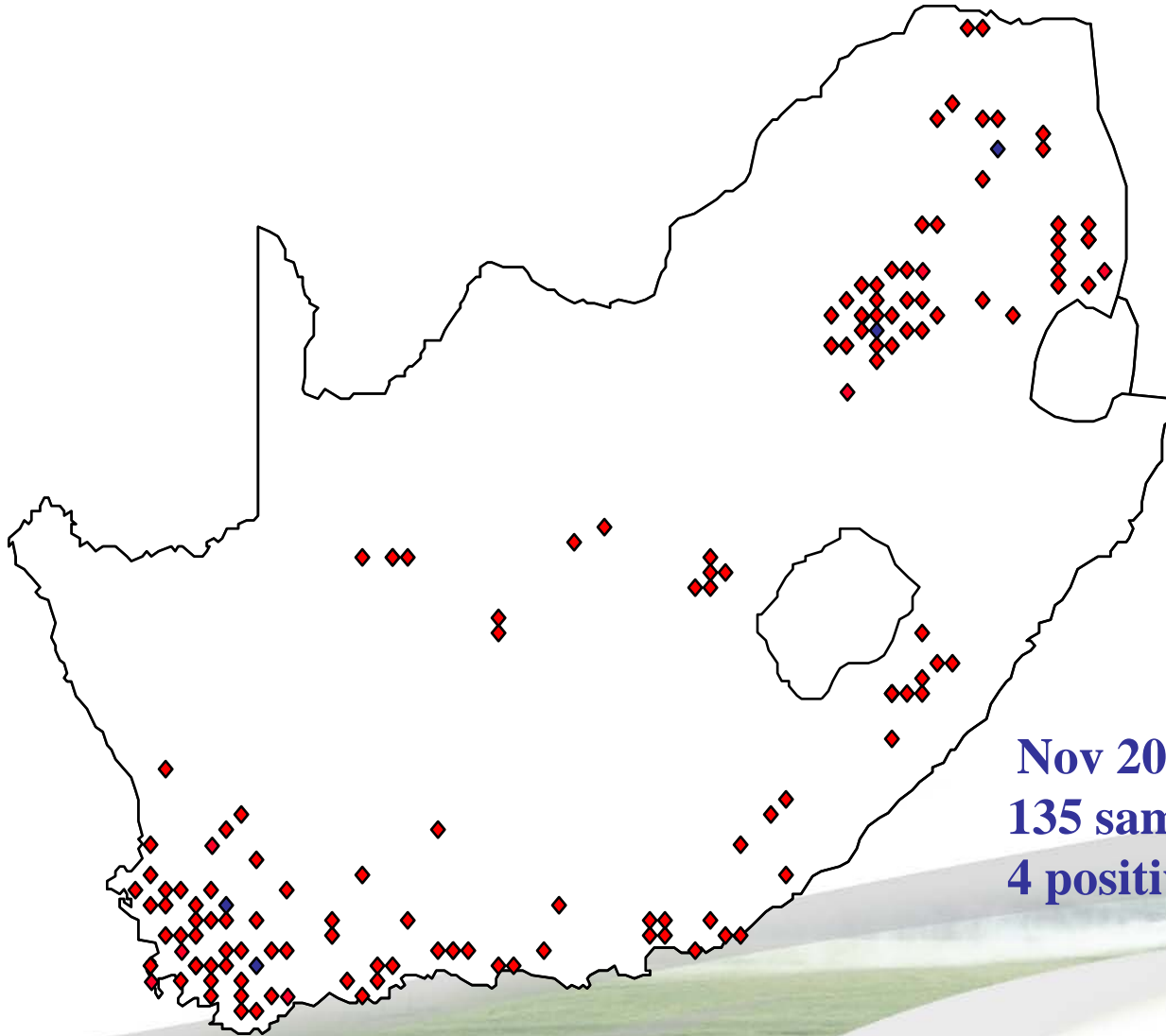


# Hive Samples



**Nov 2005 – Feb 2009**  
**140 samples**  
**All Negative**

# Retail Samples



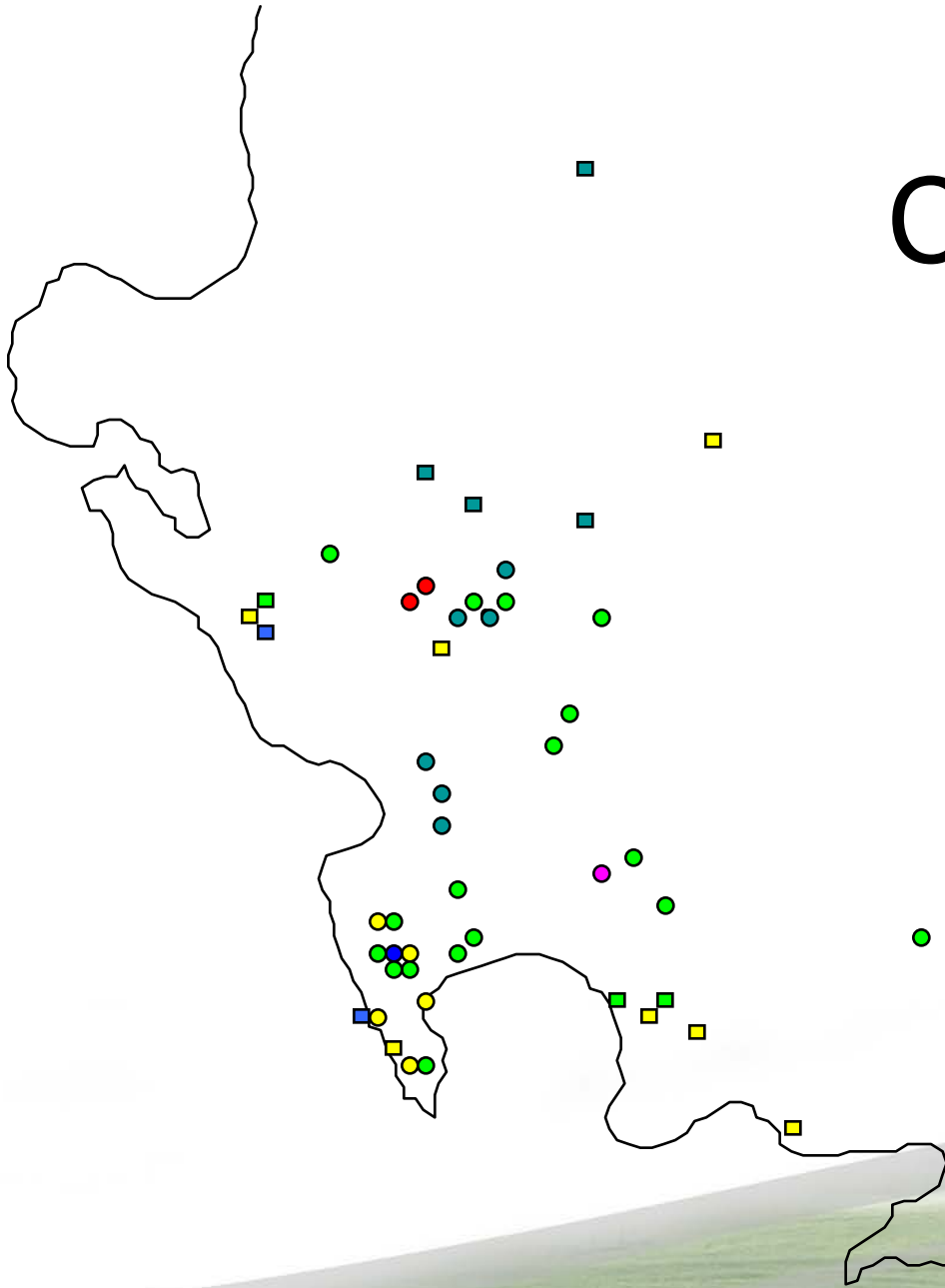
**Nov 2005 – Feb 2009**  
**135 samples**  
**4 positive**

# AFB in Africa

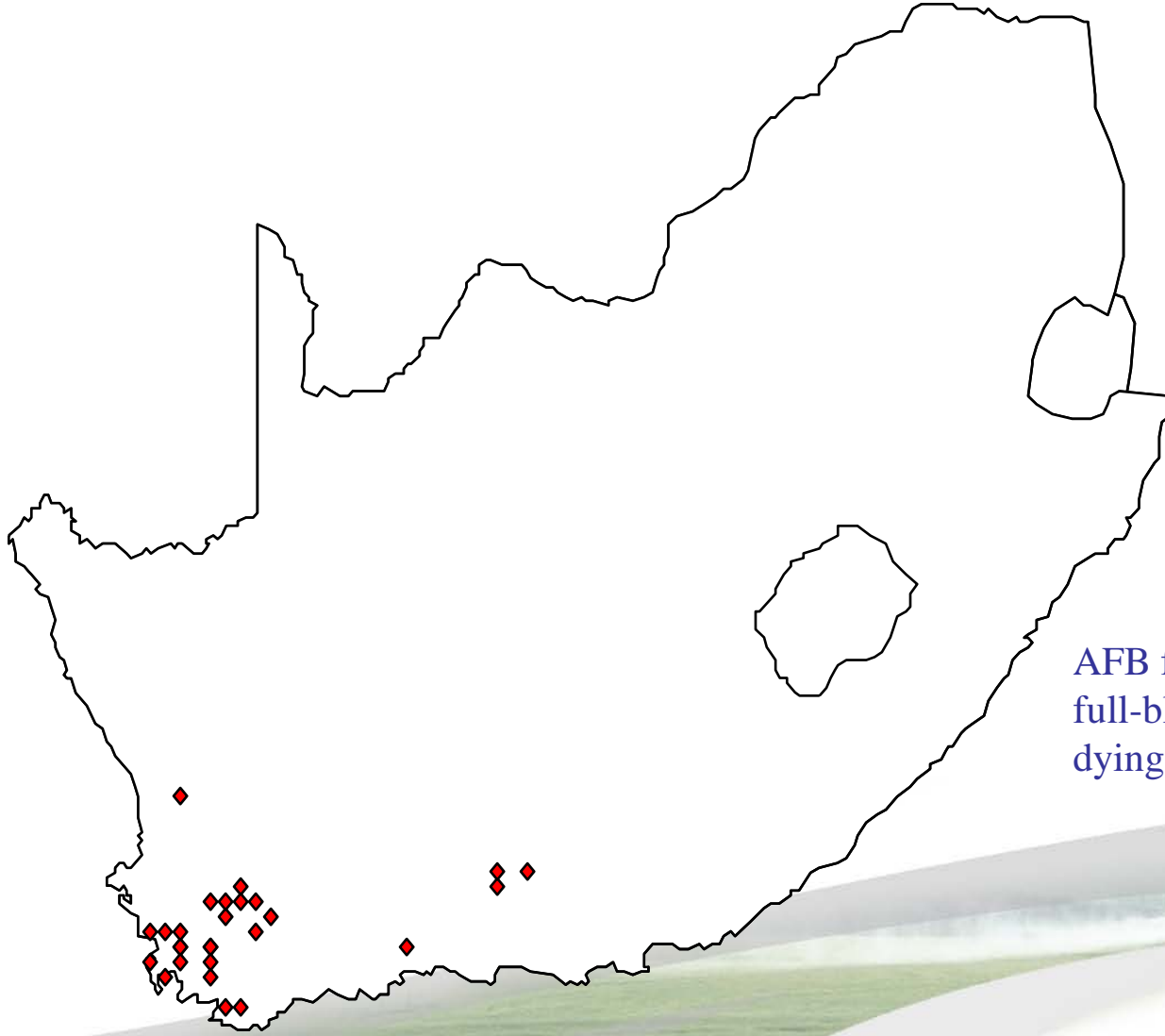
- So, Africa has had continued exposure to AFB, but no disease
- Conclusion – African bees tolerant to AFB
- Until – report in December 2008 that colonies in Cape Town with bad Foulbrood; confirmed in February 2009 to be AFB



# Cape Survey



# Clinical Infected Colonies



AFB from 40 beekeepers;  
full-blown AFB; colonies  
dying



# 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

# 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

# Making sense of it?

- Previous exposure, but no disease
- But now a big outbreak
- Why?
- And it seems to be disappearing by itself
- Why?
- And what does that mean for the future
- And the rest of Africa



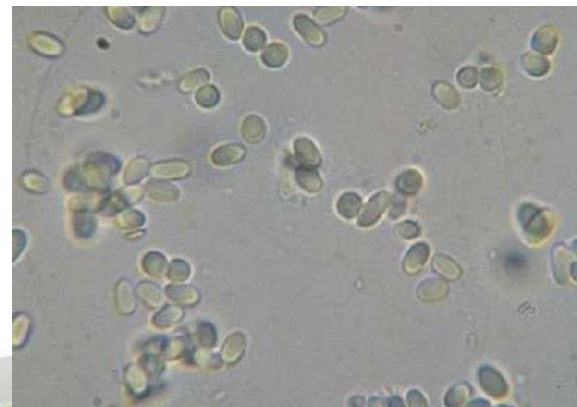
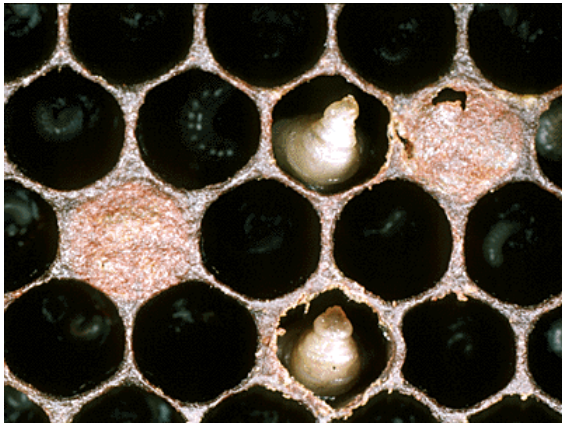
# Making sense of it?

- Maybe just a very big inoculum; a large amount of imported honey allowed; honey brought into SA without irradiation
- Or maybe a new, more virulent strain of AFB?
- Or maybe CCD weakening our bees, allowing clinical AFB – but no sign of CCD colonies in South Africa



# Making sense of it?

- Or maybe *Nosema ceranae* in South Africa, weakening our bees and allowing clinical AFB – but AFB colonies in SA negative for *N ceranae*
- Or maybe Israeli Paralysis Virus in South Africa, weakening our bees and allowing clinical AFB – but AFB colonies in SA have almost no viruses at all



# Making sense of it?

- Or maybe the varroa mite that has been in our bees for the past 14 years has weakened our bees
- So, even though they seem not to be affected by the mite, the colonies are sufficiently weakened to allow clinical AFB on exposure to a large inoculum
- And if that is true – all the other countries in Africa that now have varroa – they too might see AFB outbreaks in the future



# Making sense of it?

- And what of the recovery?
- It means that our bees in South Africa are still essentially resistant to AFB – maybe some were weakened sufficiently to get AFB infected – and some even died – but the population in general is still resistant, even to a combination of varroa and AFB



# Making sense of it?

- But it is warning to us – if we allow our bees to be exposed to new stresses – to new pests and diseases; to pesticides – then we could start seeing our bees dying from things they were previously tolerant to.
- We must be careful not to allow our bee populations get to the some state as those in Europe and America
- We must not believe our bees are completely bullet-proof

