

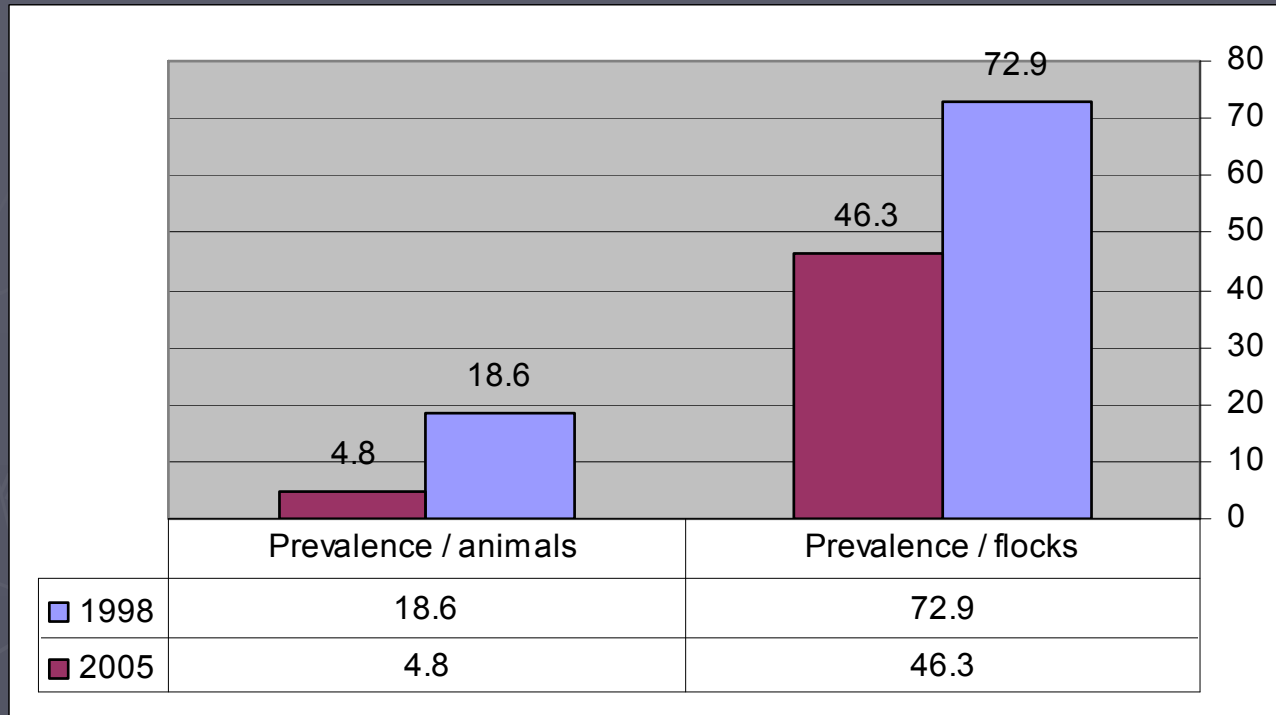
**Human Brucellosis (HB) Through Consumption  
of Contaminated Small Ruminants (SR) Products  
in Hebron District, Palestine (PA)**

**Dr. Samir Alfuhaha**  
**Food Safety Focal Point,**  
**Veterinary Services, MoA, PA**

## **PBCP started on the year 1998 with the following facts;**

- Animal Brucellosis prevalence (18.6%) among animal and (72.9%) among flocks
- Registered farmers (14579)
- Livestock census (530822) sheep (341017) goats (15990) cattle (613) camels
- Strategy of mass vaccination of sheep and goats through ocular route with Rev 1 full dose vaccine regardless of age and sex, had been implemented (according to the FAO, OIE and WHO recommendations)

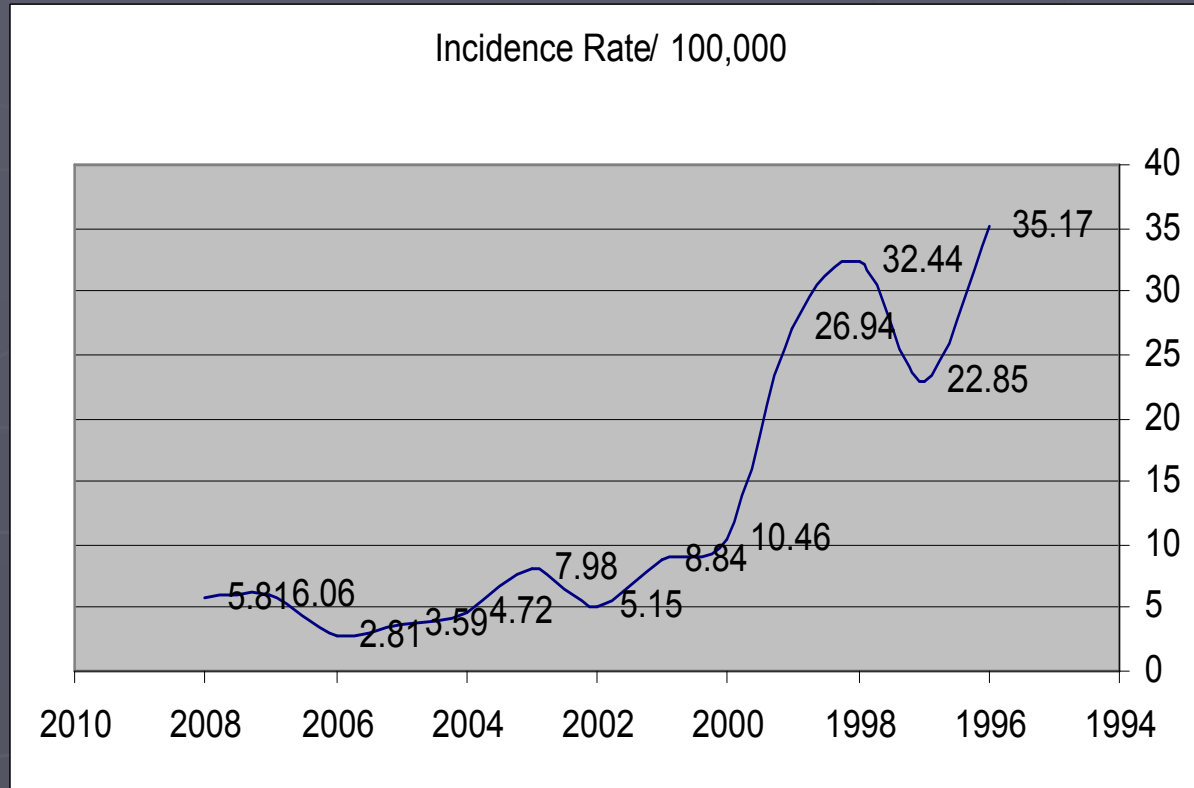
## Sero - surveillance, 2005 / 1998



Brucellosis is a zoonosis with a strong correlation between animal and human cases

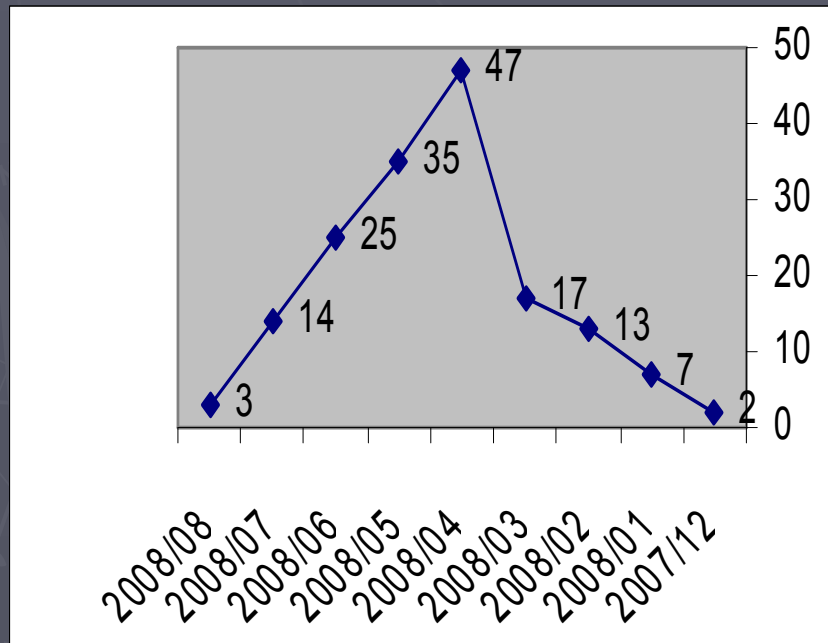
## Human Brucellosis Incidence Rate 1996 - 2008

<u>Year</u>	<u>Incidence Rate/ 100,000</u>
1996	35.17
1997	22.85
1998	32.44
1999	26.94
2000	10.46
2001	8.84
2002	5.15
2003	7.98
2004	4.72
2005	3.59
2006	2.81
2007	6.06
2008	5.81



Animal Brucellosis, especially when caused by *B. melitensis* can often be identified through investigations of human cases

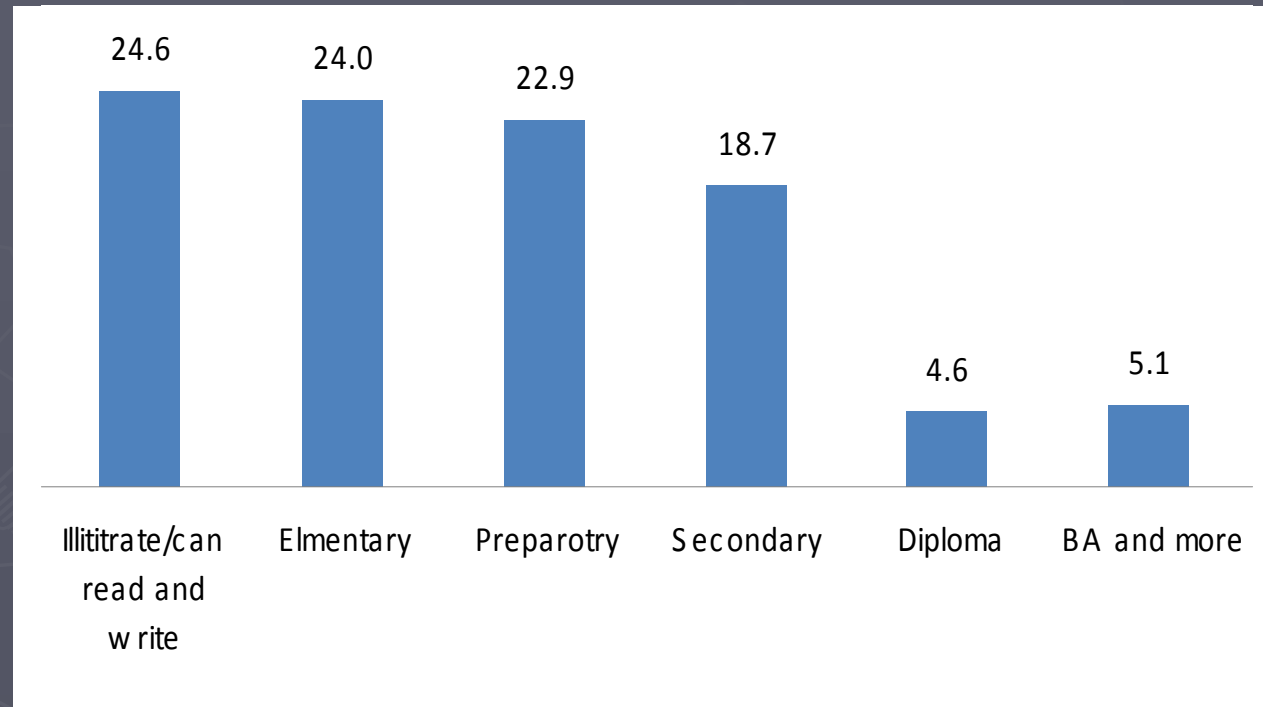
MOH records show that the maximum human Brucellosis cases are recorded in Hebron district where one third of the national livestock is raised , the seasonal trend of these cases was obvious



## Hebron district Brucellosis 2008

- ▶ 56% of human Brucellosis cases in Hebron were females, out of which 55% had contact with animals, in contrary; only 49% of male cases had animal contact
- ▶ Among the Brucellosis patients in Hebron 22% had the habit of consuming raw milk, 81% of these do contact animals.
- ▶ while 51% of the cases had the habit of consuming raw cheese, 43% of these do not contact animals.
- ▶ 53% of the human cases in Hebron had contact with animals, in fact they are a consumers of their product
- ▶ Marlin Jamil was born in Athayereah on 15/3/08 with an infant Brucellosis

## *Educational levels of livestock farmers (%)*

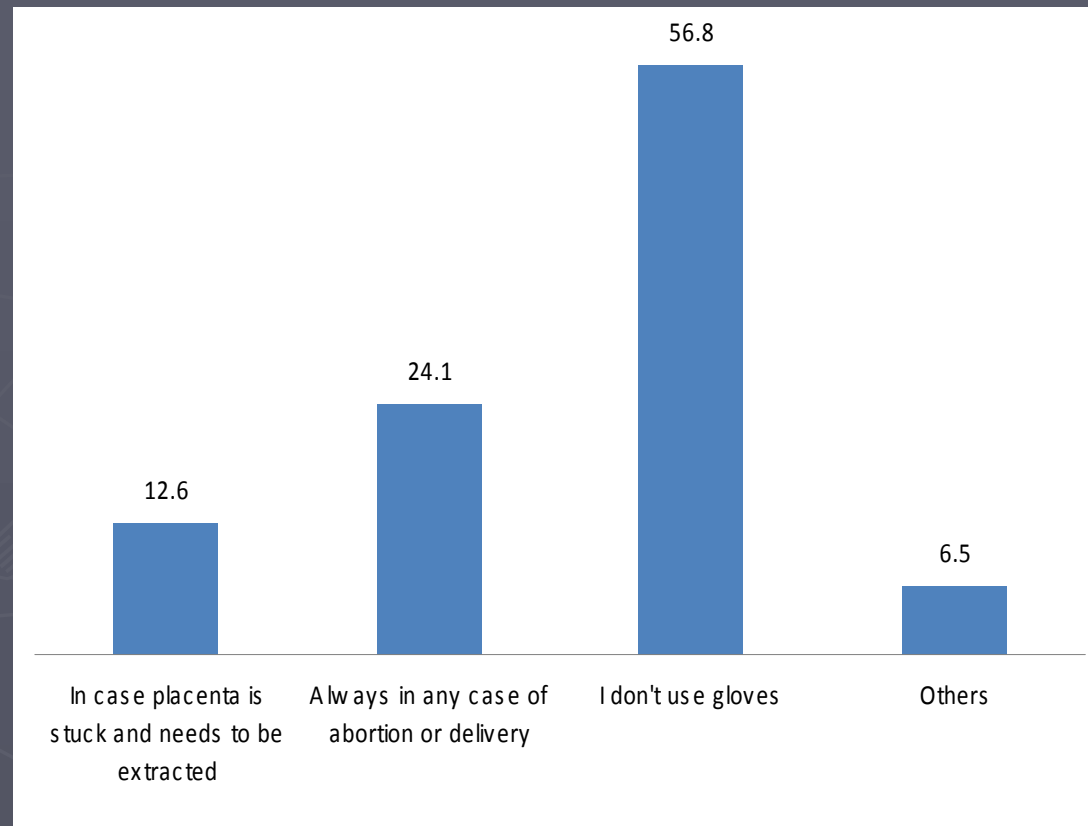


*Actions taken by farmers when suspecting  
a case of infection (% farmers)*

<b>Action Taken by Farmer</b>	<b>Yes</b>	<b>No</b>	<b>Total</b>
Report suspected animal to official authorities	60.9	39.1	100.0
Ask vet to inspect suspected animal	83.3	16.7	100.0
Sell the suspected animal	11.6	88.4	100.0
Slaughter the suspected animal	17.2	82.8	100.0
Keeping the suspected animal	55.3	44.7	100.0
Treat the infected animal	67.2	32.8	100.0



## *Cases in which gloves are used (% of farmers)*



*Percentage distribution of farmers with respect to the measures followed by while milking their animals*

<b>Protective Measures/Practices</b>	<b>Unprompted responses</b>		<b>Prompted responses</b>	
	<b>Mentioned</b>	<b>Not mentioned</b>	<b>“Yes”</b>	<b>“No”</b>
Using special clothes for milking	17.0	83.0	42.0	58.0
Udder is washed before milking	39.4	60.6	64.6	35.4
Washing hands before milking	38.8	61.2	79.6	20.4
Washing hands after milking	44.6	55.4	94.1	5.9
Washing the milking machine before milking	3.6	96.4	15.9	84.1
Washing the milking machine after milking	2.4	97.6	14.3	85.7
Placing a sheet of gauze over milk container	41.2	58.8	88.7	11.3
Others	1.9	98.1	5.2	94.8

*Percentage of beneficiaries who boil milk and cheese before consumption and sale*

		Yes	No
Do you boil the milk before	Consuming it	94.3	5.7
	Selling it	30.0	70.0
Do you boil the Cheese before	Consuming it	84.4	15.6
	Selling it	30.7	69.3

*Number of farmers' household members who have been previously infected with Brucellosis (% of farmers)*

Number of infected person in household	Count (no. of farmers)	% of farmers
1	106	84.1
2	13	10.3
3	5	4.0
4	2	1.6

*Reasons for infection according to medical reports  
(no. and % of farmers)*

<b>Reported reasons</b>	<b>Count</b>	<b>Valid Percent</b>
Friction/deal with livestock	36	29.8
Eating un-boiled milk/cheese	69	57.0
Eating un-cooked meat	5	4.1
DK	5	4.1
Others	6	5.0
Total	121	100.0

## *Sources of purchase dairy products (% of households)*

<b>Source</b>	<b>Yes</b>	<b>Some Times</b>
Produced by factory, and purchased from groceries	85	6.7
Produced by unknown farmers, and purchased from shops	10.8	17.3
Purchased from known farmer	30.0	14.3
Produced by farmers, and purchased from street vendors	4.8	14.5
Produced in homes, and purchased from street vendors	3.1	14.0
Other sources	8.0	14.0

Because Brucellosis control is categorized in to ;

- ▶ hygiene
- ▶ control of animal movement
- ▶ vaccination
- ▶ test and isolation/ slaughter

**PBCP future design must be revised to integrate these activities**

## Meat Hygiene

It is estimated that about 80% of the slaughtered animals are not under the veterinary supervision due to the noticeable shortage in the qualified abattoirs





## Occupational exposure

Slaughter men and butchers could be at high risk of exposure to Brucellosis



## Milk hygiene

57% of the produced milk in Palestine is a small ruminant milk, scattered and traditionally processed.

Directing this milk in to a pasteurization schemes for dairy products shall participate in reducing human Brucellosis prevalence



## Food borne transmission

Fresh milk or dairy products from unheated milk are usually the main source of brucellosis for urban population





Gotten appetite

*Thanks For your Attention*

