

The survey on colony losses in Turkey combining the COLOSS questionnaire and the questionnaire prepared for colony losses in Turkey.

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- Turkey enjoys very high diversity of honey bee races. In our country, about %20 of all known honey bee races is found. Particularly, comparing 5 races of Turkey for disease load and frequency by empirical and survey methods will provide a research on the effect of genetic differences on colony resistance.

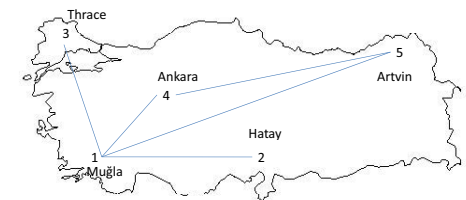
- *A. mellifera anatoliaca*
- *A. mellifera caucasica*
- *A. mellifera syriaca*
- *A. mellifera carnica*
- *A. mellifera meda*

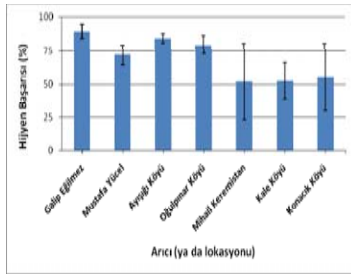
- Our basic hypothesis is that the relatively isolated bee races owned by a small part (%10-15) of Turkish beekeepers practicing stationary beekeeping can show variation in resistance against the diseases that might be responsible for the losses in beekeeping.
- Our rationale is that by determining such differences in resistance, the genetic resources which can solve the problems of the general beekeeping can be derived from these small groups.

- We have 3 research goals which are complementary and independently tractable to test the basic hypothesis:

1. survey to determine colony losses.
2. compare disease density and frequency
3. compare the reaction of colonies that represent different bee populations against disease agents.

- surveys in order to assess the colony losses in five regions which represents most of the genetic diversity in Turkey.
- a single questionnaire combining the COLOSS questionnaire and the questionnaire prepared to study colony losses in Turkey.
- These five regions also known to have both migratory and local colonies





- With number of colonies ranging between 500.000 to 600.000, Muğla is very important for beekeeping in Turkey, especially for pine honey production. It has a central position in beekeeping
- Thrace receives migratory beekeepers from surrounding regions in July for sunflower honey. Honey bees in that region suffered colony losses due to Gaucho applied to sunflowers to control insect pests.
- Hatay is also pivotal for beekeeping with large number of migratory beekeepers and some colonies of *A.mellifera syriaca*.
- Ankara is at the crossroads of migratory beekeepers from all over Turkey
- Artvin, Ardahan and Rize have the caucasian bee which is used by most of the migratory beekeepers.

- By the 1st of October 2009 questionnaires representing 23733 colonies
- By the 1st of April 2010 questionnaires representing 20 997 colonies
- A total of 165 beekeepers surveyed: 93 migratory and 72 local beekeepers

	# OF BEEKEEPERS (LOCAL+MIGRATORY)	LOSSES: LOCAL %	LOSSES: MIGRATORY %	LOSSES: BOTH %
ANKARA	19 (10+9)	14,3	11,3	12,9±4,8
HATAY	46 (10+36)	9,1	21,1	18,5±2,7
MUGLA	41 (2+39)	6,3	18,1	17,5±3,5
THRACE	59 (50+9)	20,3	13,6	19,3±2,5
EDİRNE	12 (11+1)	12,1	30,0	13,6±3,9
KIRKLARELİ	10 (10+0)	26,0	-	26,0±7,9
TEKIRDAG	37 (29+8)	21,5	0,0	20,7±3,7
OVERALL	165 (93+72)	17,5	18,2	17,9±1,5

Colony Losses Survey 2010 Done in Turkey

Name/Surname: _____ Tel/e-mail etc.: _____
Your answers will be used only for analysis and will not be shared with anyone personally

1. Location of your apiary

- a. City _____ Province _____
b. If you are a migratory beekeeper your stopping places in 2007.
In winter..... First region Second region Third region

2. Beekeeping history

- a. For how many years do you perform beekeeping? _____ Your Age: _____
b. Beekeeping study area: _____ Queen breeder _____ Honey producer
c. Your other occupation (if any): _____
d. Educational status Elementary Middle school High school College Master Doctorate

3. Honey production and colony conditions in 2009

- a. What was the average honey yield in kilograms per productive colony for 2009? _____
b. What was the level of your honey production in 2009 compared to previous years?
Lower _____ Stable _____ Higher _____
c. Did your colonies raised young brood between spring and winter? ____ Yes ____ No
f. Number of splits or extra colonies did you make/buy between October 1 2009 and April 1 2010 _____
g. How many of your colonies/splits did you sell or removed in this period _____
h. In which month did "winterrest" start in 2009 for your colonies? _____
i. When did the foraging season started for your colonies in 2010? _____
j. Did you hire your colonies for pollination services in professional agriculture? ____ Yes ____ No
How many colonies if any? _____

4.Your colony losses

- a. How many production colonies did you have?
in October 1 2008 _____ in April 1 2009 _____
in October 1 2009 _____ in April 1 2010 _____
b. How many of your colonies that died between October 1 2009 and April 1 2010, were lost without dead bees in the hive nor in the beeyard.
c. Between April 1 2009 and October 1 2009 in which month did most of your colonies (if any) die? _____
c. Were bee samples taken from your lost colonies for diagnosis ____ Yes ____ No
Diagnosis: _____

5. Queen usage

- a. Did you replaced the queens of your colonies? ____ Yes ____ In some colonies ____ No
b. Queen replacement interval? ____ 1 year ____ 2 years ____ 3 years
c. Where did you obtain your new queens from? ____ Myself ____ Commercial ____ Ministry

6. Feeding

- a. What kind of feeding do you use on your bees ____ No feeding ____ Natural ____ Syrup ____ Cake
b. Cake type: ____ Home made ____ Commercial

7. Bee Health

- a. What is the main reason of colony losses according to you?
Don't know ____, Starvation ____, Poor Queens ____, Varroa ____, Foul brood ____, Nosema ____, Weak colonies in the fall ____, Other _____
b. Which diseases did you observed in your apiary between 2009-10?
c. Treatments you apply to your colonies: Oksalic acid ____ Formic acid ____ Thymovar ____ Perizine ____ Other _____
For how many years? _____ How many times in a year? _____
Do you apply the same treatment to all your colonies? ____ Yes ____ No
Do you apply it on the same month? ____ Yes ____ No

8. Environment and other aspects.

a. Which honeybee races and for how many years that you were mainly using? _____

b. Environmental conditions.

Presence of industrial complexes in your province? _____. Presence of pesticide treatment? _____.

Presence of urban settlement? _____.

c. Wintering and climate conditions: How was 2009-2010 winter compared to previous years?

____ Similar to every year. Hotter _____. Colder _____. Drier _____. Wetter _____.

d. Did you take your colonies to agricultural areas to for nectar collecting? ____ Yes ____ No

9. Your observations about colony losses

a. Did your colonies die suddenly when they had seemed healthy and powerful? ____ Yes ____ No

b. Were comb moths present in the empty combs of your lost colonies? ____ Yes ____ No

c. Did the combs of your lost colonies contain pollen and honey? ____ Yes ____ No

d. Were there few numbers of workers and clodes pupae around the queen in your dying colonies?

____ Yes ____ No

e. Were there groups of dead bees inside your lost colony? ____ Yes ____ No

f. Were there groups of dead bees outside your lost colony? ____ Yes ____ No

h. What percentage of losses over the period between October 1 2009 and April 1 2010 would you

consider acceptable:

For your apiary _____

For your region _____



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Thank You