

Farm efficiency improvement by monitoring feed and milk output.

Feed efficiency is an important element in goat dairy farming. A good conversion rate of feed into milk is not only cost effective, but it tells also a positive story about the condition of the animal.

In 2013 EKcheese started with a group of goat farmers the systematic registration of data regarding the feed of the goats in relation to the milk production and milk quality.

The farmers are Dutch farmers who are interested in this study and who are positive to share the data with the group.

By using a registration model of Ekcheese, farmers gave their weekly input of the relevant data.

The input base is:

- Production volume in kg milk
- Percentage fat in milk
- Percentage protein in milk
- Kg and cost/kg of different feed as:
 - o Roughage
 - o Concentrate pellets
 - o Other feed
- Nr of dairy goats.

The model generates following output:

- Average Kg milk per day per goat
- Average percentages Fat and protein
- Grams Fat and protein/goat/day
- Dry matter feed content per kg milk
- Feed efficiency
- Cost of feed per kg milk (total and per feed type)

The first overview of the first year 2013 gives the next picture:

general Farmers:	Average milk/day	Fat %	protein %	Number of goats
1	5042	4,09%	3,55%	1556
2	2245	4,00%	3,48%	721
3	6130	4,04%	3,47%	2036
4	4037	4,00%	3,52%	1063
5	6637	4,04%	3,56%	2478

Milk Farmers:	Kg Milk per goat/day	gram fat/goat/day	Gram protein/goat/day	Fat+protein per goat/day	Tot Dry matter/kg m.milk	Feed efficiency
1	3,24	132	114	246	0,85	1,19
2	3,04	121	105	226	0,98	1,12
3	3,00	121	104	225	0,93	1,09
4	3,65	144	128	272	0,82	1,23
5	2,67	107	94	202	0,97	1,12

Feed Farmers:	Tot dry m/kg m.milk	Kg Dry m pellets per kg m.milk	Kg roughage per kg m.milk	Kg dry m other per kg M.Milk	pelletcost per kg M.Milk	rough cost per kg M.Milk	other cost per kg M.Milk	tot feedcost per kg M.Milk
1	0,85	0,39	0,41	0,05	€ 0,14	€ 0,07	€ 0,01	€ 0,22
2	0,98	0,71	0,27	0,00	€ 0,23	€ 0,04	€ 0,00	€ 0,28
3	0,93	0,68	0,21	0,04	€ 0,19	€ 0,03	€ 0,01	€ 0,23
4	0,82	0,50	0,28	0,05	€ 0,15	€ 0,04	€ 0,01	€ 0,21
5	0,97	0,42	0,44	0,11	€ 0,15	€ 0,05	€ 0,02	€ 0,22

Feed typ per farm 2013

Farm	concentrate	roughage	other
1	27%	64% Hay, Silage(grass), alfalfa,corn. straw	13% Beet pulp cygarant
2	68%	32% Hay , silage(grass),straw	
3	55%	33% Grass(dry),corn, hay, straw	12% Beet pulp
4	44%	45% Corn, alfalfa, straw, hemp	11% cygarant
5	26%	52% Grass , silage,straw	22% Beet pulp

General conclusions 2013

1. Output.

Noteworthy is that output in volumes per goat per day did not show big differences with exception of farm 5. One of the backgrounds of this lower figure is the fact that this farm has sold much young animals and therefore is the remaining herd relative older

2. Despite the big differences in feed policy the total costs per liter milk are not significant.

Only Farm 2 has a higher feed cost figure due to the high percentage of concentrate feed.

3. Farm 4 had the best score at feed efficiency.

Of course are there other factors that have an influence at the end result.

At the monitoring sessions the differences are discussed and conclusions have been drawn.

4. There are substantial differences between the farms regarding breeding system, replacement management, feed management and also regional factors.

5. Exchanging background and knowledge did help the individual farmers in improving there own business.

The second year 2014

In the second year the same data have been collected . Beside this data also data have been collected to compare as ;

- Use of straw
- Use of water
- Cost of breeding

The outcome of these figures has also introduced several improvement actions at the different farms.

The total picture over 2014 is given in next overview.

Overview 2014

Total average 2014

general Farmers:	Average milk/day	Fat %	protein %	Number of goats				
1	5402	4,04%	3,49%	1586				
2	3036	3,85%	3,54%	943				
3	12228	3,83%	3,41%	3057				
4	6397	3,98%	3,37%	2105				
5	5549	3,78%	3,57%	1456				
Milk Farmers:	Kg Milk per goat/day	gram fat/ goat/day	Gram protein/ goat/day	Fat+protein per goat/day	Tot Dry matter/ kg m.milk	Feed efficiency		
1	3,41	138	119	257	0,79	1,27		
2	3,16	122	112	233	0,79	1,27		
3	4,00	153	136	290	0,85	1,18		
4	3,03	121	102	223	0,94	1,06		
5	3,57	135	127	262	0,83	1,20		
Feed Farmers:	Tot dry m/ kg m.milk	Kg Dry m pellets per kg m.milk	Kg roughage per kg m.milk	Kg dry m other per kg M.Milk	pelletcost per kg M.Milk	rough cost per kg M.Milk	other cost per kg M.Milk	tot feedcost per kg M.Milk
1	0,79	0,37	0,36	0,06	€ 0,12	€ 0,06	€ 0,01	€ 0,19
2	0,79	0,73	0,18	0,04	€ 0,22	€ 0,04	€ 0,02	€ 0,26
3	0,85	0,60	0,25	0,00	€ 0,18	€ 0,40	€ 0,00	€ 0,22
4	0,94	0,73	0,20	0,02	€ 0,19	€ 0,03	€ 0,00	€ 0,22
5	0,83	0,64	0,14	0,05	€ 0,16	€ 0,02	€ 0,02	€ 0,20

Feed type/farm 2014

Farm	concentrate	roughage	other
1	23%	67% Hay, Silage(grass), alfalfa, corn. straw	10% Beet pulp cygarant
2	70%	20% Hay, silage(grass), straw	10% Beet pulp
3	69%	31% Grass(dry), corn, hay, straw	
4	26%	52% Grass, silage, straw	22% Beet pulp
5	44%	45% Corn, alfalfa, straw, hemp	15% cygarant

General conclusions 2014

In 2014 one farmer has left the study group and a new farmer has entered the group.

Just as in 2013 the picture shows a big variety in feed types and feed management. Most of the farmers feed their animals in different groups, mainly depending on productivity and age.

One farmer has a system of individual concentrate feeding using a rotary individual feeding system.



Just as in 2013 the results have been discussed each quarter in an open exchange of backgrounds and relevant data.

Feed efficiency shows good figures with exception of farm 4. One of the reasons was the relative older population of the animals.

The figures regarding the use of straw, water and the cost of breeding have been widely discussed to explain the differences. These figures are not published.

One of the main discussions has been the balance between production of milk and the growing percentage of fat in the goats. Rich feed gives of course good milk production but also can lead to too fat animals. The corn component in the feed seems to be an important factor. Too high corn content in the feed causes easily to fat animals. Acidification of the rumen is also a danger when the feed is too rich and there is too less good quality roughage in the feed mix.

The study group has decided to continue in 2015 with collecting data and interchange this data. Some new farmers have entered the group and some stepped out. The group decided that a group size of about 5 should be fine to work with.

Next publication shall be done after the end of 2015

The study group is managed by EKcheese

www.ekcheese.nl