

NEED ANALYSES REPORT (Q2)

“Rational Livestock Nutrition in Rural Areas” [LIVENUTRITION]

project n° 2014-1-PL01-KA202-003496

Erasmus+ Strategic Partnership for Vocational Education and Training (KA202)

TRANSNATIONAL SUMMARY REPORT: POLAND, TURKEY, ITALY, HUNGARY and ROMANIA

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Introduction

LIVENUTRITION project is an Erasmus+ Strategic Partnership for Vocational Education and Training (KA202) project coordinated by WUELS, PL. One more partner from Poland, two partners from Turkey, one partner from Hungary and one from Romania are consortium of the project.

The project intends to develop a curriculum for livestock breeders' trainers, especially in rural areas. LIVENUTRITION project *aims* to create completely updated teaching materials on livestock nutrition for rural areas and relevant importance as indicators of agriculture sustainability.

The main target groups of the LIVENUTRITION project are *farmers, nutritionists, feed manufacturers, livestock consultants, teachers in vocational education on livestock and agriculture advisors.*

The expected results of LIVENUTRITION are:

- fostering knowledge transfer, good practice and innovations in agriculture, with special attention to animal nutrition,
- enhancing the competitiveness of farmers involved in livestock production,
- reducing the animal production impact on natural environment and enhancing well-balanced agriculture,
- promoting social inclusion poverty reduction and economic development in rural areas.

In proposal, *details of output and activity for need analyses report* are:

Output Identification: Q2

Output Title : Need analyses report

Output type: Study/analysis

Output Description: The result will be report of the needs which will be the base to the further work.

Language: English

Media: Database, text file

Activity Code: Q2-A1

Activity phase: Preparation

Activity title: Need analyses

Activity Leading Organisation: BAU

Start and end date of the activity: 15.11.2014-15.03.2015

Activity description: This result will be obtained in two stages.

- The aim of the first phase is to further analyze and define the needs of users in the partner countries and involved regions and to make fine adjustments of the work plan.
- Needs analysis through desk research, workshops with focus groups, interviews, identification of needs and user involvement in partners' countries.

Each partner will be obliged to collect *at least 60 questionnaires*. Need analysis will be based on statistic methodology. The answers the survey questions will be tried to specify potential target groups and their needs.

Tasks and role of each organization in need analyses are: All partners will be responsible for preparing questionnaires, translating into national languages and making survey with their target groups in their countries. Each partner will do survey where will be indicated needs and potential beneficiaries after finishing survey each partner will elaborate national need analyses report and send it to BAU. The final need analyses report will be prepared by them and presented during second consortium meeting in Hungary.

The *Output Q2, Activity Q2-A1* of the project LIVENUTRITION Project describes that, before the actual work on the LIVENUTRITION handbook, training modules and training courses start, an inventory of needs will be organised by the Balıkesir University; but carried out in partner countries in their own language. After national need analysis completion Balıkesir University will be responsible for final need analyses report.

METHODS

The partners used two suggested methods of gathering the information needed:

- Through consultation meetings, workshops with focus groups, interviews
- Through questionnaires either online, or paper-based and email.

It has been agreed [at PM1] that the project outcome [at least the handbook] would cover the whole of the subject of ‘livestock nutrition in rural’. We also proposed the same contents for this outcome of the handbook in project submission.

The consultation meetings and questionnaires did nothing is left out and would focus on completing the handbook subjects.

A draft questionnaire was prepared by the output leader, BAU then distributed to the partners to get their comments and special needs of the rural livestock farmers and other target groups in their country. The partners sent their comments and needs to the output leader. The leader and the coordinator of the project made finalize the questionnaire in English (Annex I).

The questionnaire have 3 main parts:

- **Part I.** Participant’s personal data
- **Part II.** General information about farm advisory system and an average farm structure where survey participant is external consultant
- **Part III.** Rational livestock nutrition in rural areas

In Part III the participants were asked if they needed skills/competences (expertise) in the respective categories of livestock nutrition. Participants also estimated both their current and desired skills in the respective fields of livestock nutrition. Skill level was rated from 1 to 5 where 1 = no skill, 2= fair 3 = satisfactory skill, 4=good and 5= professional knowledge.

The LIVENUTRITION partners translated questionnaire into national languages and made survey with their target groups in their countries. Each partner organised consultation meetings and did survey in their country



in order to collect the data from at least 60 participants as indicated in *the questionnaire and in project proposal*.

In the meetings aims, target groups, consortium and outputs of the project were presented by the partners. The program of the meeting consisted of 3 main parts:

- The (PowerPoint) or oral introduction to the project and connection between the LIVENUTRITION project and this meeting
- An open discussion -not too long- for which the suggested questions appeared in on Annex I.
- Data collection on the questionnaire.

The identification of the relevant stakeholders was made by the partners regarding project proposal during KoM in Poland. The partners decided to invite these groups to questionnaires and consultation meetings:

- *Primary* – those who benefit directly from the project – in this case livestock farmers and aspiring livestock farmers (students, life changers, etc.), nutritionists, feed manufacturers, veterinarians, animal scientists, livestock consultants, livestock farmers’ associations and cooperatives
- *Secondary* – those who benefit indirectly from the project these might include teachers and trainers in vocational education on livestock,
- *Tertiary* – those who have an interest in the project being a success but do not directly benefit from the project outcomes. These would include, agriculture advisors, product processing sector, food engineers, consumers, environmentalists, other farmers, policy makers, etc.

After finishing survey each partner elaborated national need analyses report and sent it to BAU with data collected. The final need analyses reports of the partners have prepared by them and presented during second consortium meeting in Hungary.

The partners are free to translate the final need analyses report into their languages.

The partners collected 475 questionnaires (PL-145, TR-120, IT-77, HU-69 and RO-63) in total. Each partner used almost the same methodology to collect the data during survey. However, the methodology used by the partners was different depending of relationships with the target groups:

In Poland the survey started in January 2015. WUELS and Arid Lacjum translated the questionnaire into Polish and made survey with 145 participants in the region PL-16. 84 of them were student, 47 of them farm owner, 13 of them work contract and 1 of them were external consultant.

In Turkey the survey started in January 2015. The BAU and COMU translated questionnaire into Turkish and made survey with their target groups in Balıkesir and Çanakkale province. They made general consultation meetings with farmers and advisors of livestock breeders’ associations. They did survey in this meetings. The farmers were contacted individually face to face through contacts with local livestock breeders associations in the Balıkesir and Çanakkale provinces by BAU and COMU, and their staff and students; **120** filled in questionnaires were given back. 60 of them were farmers and students; 60 of them were advisor/consultant mostly veterinarian and animal scientists.

In Italy the survey started on January 2015. **77** filled in questionnaires were given back. 55 of them were advisor/consultant and 12 of them were farmers/students.



In Hungary the survey started on January 2015. 69 filled in questionnaires were given back. 48 of them were advisor/consultant and 21 of them were farmers and students.

In Romania the survey started on January 2015. 63 filled in questionnaires were given back. 41 of them were advisor/consultant and 22 of them were farmers and students.

The farmers giving back their responses were therefore totally 474.

RESULTS

1. Participant's personal data

The respondents from to the questions in "Part I. PARTICIPANT'S PERSONAL DATA" from 1 to 6 containing data of age of farmers, gender, education, employment status and experience in livestock farming or consultancy/teaching were given in Table 1.

The respondents to the optional questions 1-6 of the questionnaire:

In Poland were 145, 66 males and 79 females.

The intensive age group of them was 18-30 ages with 96 participants followed 46-60 age group with 21 participants.

Education was mainly higher education (71 participants), followed high school with 56 participants. 84 of them were student and 47 of them were farm owner.

Experience in livestock farming or consultancy/teaching was >1 year of 51 respondents followed >20 years experience with 31 participants and 6-10 years experience with 19 participants.

The type of consultancy was on:

- consultant,
- sales advisor,
- z o o techniques,
- adviser and academic teacher.

In Turkey were 120, 93 males and 27 females.

The intensive age group of them was 31-45 with 62 participants, followed 46-60 age group with 31 participants.

Education was mainly higher education (54 participants), followed vocational with 34 participants. 47 of them were farm owner, 41 of them were external consultant from the association technical staff and 24 of them were student mostly from veterinary and agricultural faculty and vocational high school which includes animal production department.

Experience in livestock farming or consultancy/teaching was 6-10 years of 48 respondents, followed 11-20 years experience for 27 participants and 1-5 years experience for 26 participants.

The type of consultancy was on:

- dairy nutrition,
- diet formulation,

- agricultural advisor
- and calving.

In Italy were 77, 20 males and 57 females.

The intensive age group of them was 46-60 and >60 ages with 26 participants followed 31-45 age group with 22 participants.

Education was mainly high school (32 participants), followed vocational with 25 participants.

79 of them were farm owner, 6 of them were external consultant.

Experience in livestock farming or consultancy/teaching was >20 years of 49 respondents followed 11-20 year experience (14).

The type of consultancy was to:

- reduce production costs,
- improve quality,
- diet formulation,
- increase production,
- prevent diseases

In Hungary were 59, 41 males and 28 females.

The intensive age group of them was 46-60 ages with 25 participants followed 31-45 age group with 23 participants.

Education was mainly vocational (35 participants), followed higher education with 24 participants. 48 of them were farm owner, 24 of them were external consultant.

Experience in livestock farming or consultancy/teaching was 11-20 years of 24 respondents followed 6-10 years experience for 23 participants and > 20 years experience for 19 participants.

The type of consultancy was:

- poultry,
- pigs,
- nutrition,
- animal health,
- veterinarian,
- bioadditives
- and general.

In Romania were 63, 39 males and 14 females.

The intensive age group of them was 31-45 ages with 30 participants followed 46-60 age group with 17 participants.

Education was mainly higher education with 52 participants, followed high school with 10 participants.

28 of them were farm owner, 20 of them were work contract, 13 of them were external consultant.

Experience in livestock farming or consultancy/teaching was 11-20 years of 22 respondents followed >20 year experience (14) and 6-10 years experience (13).

The type of consultancy was :

- the newest technology and technology of plant production;
- using artificial fertilizers;
- applying pesticides;
- new skills in feed growing;
- modern animal nutrition;

- growing organic products and producing animal products;
- realizing animal welfare;
- realizing a healthy sole-animal-human relationship;
- organic farming skills;
- profit motive farming

Table 1. Participant's personal data

Category	Poland	Turkey	Italy	Hungary	Romania	Means
Participants	145	120	77	69	63	82.2
Participant's age:						
18-30	96	19	3	12	9	25.4
31-45	20	62	22	23	30	31.4
46-60	21	31	26	25	17	24
>60	8	8	26	9	7	11.6
Gender:						
Female	79	27	57	28	14	41
Male	66	93	20	41	49	53.8
Education:						
Primary	1	9	12	0	1	4.6
Vocational	16	34	25	35	0	22
High school	56	23	32	10	10	26.2
Higher education	71	54	7	24	52	41.6
Employment status:						
Farm owner	47	47	79	48	28	49.8
Student	84	24	2	-	2	22.4
Work Contract	13	8	4	-	20	9
External consultant	1	41	6	21	13	16.4
Experience:						
>1	51	-	3	-	4	11.6
1-5	24	26	4	3	8	7.8
6-10	19	48	7	23	13	22
11-20	18	27	14	24	22	21
>20	31	19	49	19	14	26.4

In general:

- A total of 474 individuals participated in the need analysis survey in Poland, Turkey, Italy, Hungary and Romania. Number of participants ranged from 63 in Romania to 145 in Poland.
- Most of the participants ranged from 31 to 45 years of age followed 18-30 ages.
- Large majority of the participants in the survey were male (65.45%).

- Education level of the participants was mostly higher education (50.60%).
- Majority of them were farm owner (60.58%).
- Majority of them (84.42%) have more than 11 years experience in livestock nutrition in rural.

2. Farm structural data

The respondents from to the questions in “Part II. A.GENERAL INFORMATION ABOUT FARM STRUCTURE” from 1 to 10 were given in Table 2. About farm structural data of the respondents Table 2 shows:

In Poland the poultry per farm was 460 followed pigs with 37.52. Dairy cattle number of farms were 11.46. The average farm area was 10.02 ha. The concentrate area and grassland/pasture area were 4.37 h and 3.87ha, respectively.

37 of 145 respondents produce 100-75% of forages used in livestock nutrition in the farm.

34 of 145 farms produce 100-75% of concentrate in their farms. However, 19 of farms can only produce <25% of concentrates used in livestock nutrition in the farm.

72 of 145 respondents don't have any livestock advisors provide their service in the farm.

In 88 of 145 farms which have livestock advisors, feedstuffs sales personel provide animal nutrition counselling in the farm. Animal nutrition expert/Veterinarian have responsible for counselling for 20 farms. 30 of them are satisfied and 22 of them are neutral with animal nutrition counselling service.

The reasons for purchasing forages and concentrates are:

- lack of knowledge, knowledge of themes, easy access and the ability to talk to each nutritional problem,
- revenues are small,
- lack of competence of the persons who providing advisory services, lack of adequate knowledge, lack of reliability, affects the proper feeding of a large amount of milk expertise,
- available laboratory analyst, suitable spreadsheet programs to set food highly competent advisor in nutrition of dairy cows, lack of self-feed, problems with the company products do not work,
- specialist information.

The reasons for the unsatisfied farmers with animal nutrition counselling service are:

- lack of knowledge, revenues are small, lack of competence of the persons who providing advisory services, lack of adequate knowledge, lack of reliability,

In Turkey the dairy cows, beef cattle, sheep and goats number per farm were 24, 12, 52 and 11, respectively. No farm have pigs.

The average farm area was 9.7 ha. There is no pastures/ grasslands areas in the farms. In general, the farms were small-sized type and have limited farm area and animal species.

34 of 60 respondents produce 75-50% of forages used in livestock nutrition in the farm.

However, 22 of farms can produce <25% of concentrates used in livestock nutrition in the farm.

43 of 60 respondents don't have any livestock advisors provide their service in the farm

In 14 of 17 farms which have livestock advisors, animal nutrition expert/veterinarian provide animal nutrition counselling in the farm.



11 of 17 farms are very satisfied with animal nutrition counselling service.

The reasons for purchasing forages are no fields to forage grow, no irrigation, and not economic production. The reasons for the unsatisfied farmers with animal nutrition counselling service are cost of counselling and not skilled advisors on diet formulation.

In Italy the poultry per farm was 77728 followed sheep and pigs with 186 and 141, respectively. Dairy cattle and beef cattle number of farms were 27 and 26.

The average farm area was 50 ha. The concentrate area is 25 ha and forages area is 13 ha. The grasland/pasture area is 23 ha.

42 of 68 respondents produce 100-75% of forages used in livestock nutrition in the farm.

27 of 68 farms produce 100-75 of concentrate in their farms. However, 14 of farms can produce <25% of concentrates used in livestock nutrition in the farm.

30 of 72 respondents don't have any livestock advisors provide their service in the farm.

In 21 of 72 farms which have livestock advisors, animal nutrition expert/veterinarian provide animal nutrition counselling in the farm. Feedstuffs sales staff provide counseling in 15 farms.

19 of them are satisfied and 16 of them are neutral with animal nutrition counselling service.

The reasons for purchasing forages and concentrates are:

- unavailability of land for rent,
- no forage fields as cultivations,
- agricultural machines not available (i.e. round-baler),
- integration of fibres in the diet,
- inadequate feed, RDP agro-environmental measures (commitments)

The reasons for the unsatisfied farmers with animal nutrition counselling service are high costs and low quality of advisors on the goat sector.

In Hungary the poultry per farm was 6137 followed sheep and beef cattle with 28.8 and 23.9, respectively. Pigs and dairy cattle number of farms were 21 and 14.6.

The average farm area was 67 ha. The concentrate area is 8 ha and forage area is 5 ha. The grasland /pasture area is 20.1 ha.

38 of 48 respondents produce 100-75% of forages used in livestock nutrition in the farm. However, 10 of them can produce < 25% of concentrate in the farm.

25 of 48 farms produce < 25% of concentrate in their farms. However, 15 of farms can produce 50-25% of concentrates used in livestock nutrition in the farm.

10 of 48 respondents don't have any livestock advisors provide their service in the farm

In 24 of 48 farms which have livestock advisors agriculture / livestock advisor provide animal nutrition counselling in the farm. Feedstuffs sales staff and animal nutrition expert / veterinarian provide counseling service in 12 farms each.

35 of them are satisfied, 8 of them are neutral and 5 of them are very satisfied with animal nutrition counselling service.

The reasons for purchasing forages/concentrates are:

- better quality: sometimes the quality of the purchased fodder is better than the self grown one;
- purchased fodder may contain the required missing macro- and microelements;



- insufficient amount of fodder has been grown in the farm;
- the missing fodder types can be purchased;
- the self grown and the purchased fodder mix may increase animals' weight gain;
- there is no enough storage space at the farm;
- there is no enough cultivable area at the farm;
- some farmers do not want to undertake the risk of fodder growing;
- contains concentrate;
- favourable weight gain

There aren't any unsatisfied farmers with animal nutrition counselling service in Hungary. For neutral's the reasons are:

- The primary task is to establish a good human and professional relationship.
- Information delivery must be fair.
- Positive practical experiences are required in order to acquire new skills.
- The advisor permanently expands his/her knowledge.
- With the acquired knowledge the advisor helps the farmers to innovate their cultivation or livestock farming technique or technology.
- A special advisor can make competent suggestions regarding the farmer's daily or annual management and carry his/her point.
- A special advisor evidently contributes to the fact that the farmer can make increasing profit.
- The effective work of a good special advisor is acknowledged by the farmers who share their experiences among themselves. This is the best professional acknowledgement for a special advisor.
- The exact information delivery helps the effective farming.
- Acquiring new technologies can be helpful for the annual or the daily farming.
- Farming may become more profitable.

In Romania the dairy cows, pigs and poultry number per farm were 17, 11 and 10, respectively.

The average farm area is 25 ha. 20 ha of them is for forages and 15 ha is for concentrates. The pasture and grassland area are 13 ha.

19 of 30 respondents produce 100-75% of forages used in livestock nutrition in the farm.

However, 12 of farms can produce <25% of concentrates used in livestock nutrition in the farm.

20 of 35 respondents have livestock advisors provide their service in the farm. 15 of them don't have any livestock advisors providing service in the farm.

The majority of farm (16 farms) have animal nutrition expert/veterinarian to provide animal nutrition counselling in the farm.

16 of farms are very satisfied and 11 of them satisfied with animal nutrition counselling service.

The reasons for purchasing forages and concentrates are:

- not enough feed resources / not enough land for cultivating,
- insufficient / absence of the on-farm produced protein feeds,
- insufficient ingredients for covering basic nutritional requirements,
- concentrates not produced on-farm, poorly productive agricultural year,
- no cereal crop plan (crop rotation) and lack of feed production equipment .

The reasons for the unsatisfied farmers with animal nutrition counselling service are cost of counselling.

Table 2. General information about farm structure

Category	Poland	Turkey	Italy	Hungary	Romania	Means
Animal species						
Dairy cattle	11.46	24	27	14,6	17	18.81
Beef cattle	3.2	12	26	23,9	4	13.82
Pigs	37.52	-	141	21	11	42.10
Sheep	2.28	52	186	28,8	6	55.01
Goat	2.28	11	38	6,3	5	12.51
Poultry	460	5	77728	5	10	15641
Other (Chicken)	1.24	3	-	6137	3	1228.8
Farm areas, ha	10.02	9.7	50	67	25	32.34
Total	3.87	-	23	20,1	13	11.99
Pastures/ grasslands	1.87	4.2	13	5	20	8.81
Forages growing	4.37	5.1	25	8	15	11.49
Concentrates growing						
What percent of forages used in livestock nutrition is produced in the farm						
100-75%	37	14	42	38	19	30.0
75-50%	31	34	14	-	5	16.8
50-25%	27	12	3	-	1	8.6
<25%	19	-	9	10	5	8.8
What percent of concentrates used in livestock nutrition is produced in the farm:						
100-75%	34	6	27	3	11	16.2
75-50%	23	15	4	5	7	10.8
50-25%	30	17	4	15	3	13.8
<25%	19	22	14	25	12	18.4
Do any Livestock advisors provide their service in the farm:						
Yes	44	17	42	38	20	48.6%
No	72	43	30	10	15	51.4%

Who does provide Animal nutrition counselling in the farm:						
Animal nutrition expert/Veterinarian	20	14	21	12	16	16.6
Agriculture/Livestock advisor	17	-	8	24	6	11.0
Feedstuffs sales rep	28	2	15	-	7	10.4
Other	6	1	1	12	4	4.8
Are you Satisfied with animal nutrition counselling service:						
very satisfied	12	11	4	5	16	11.6
satisfied	30	4	19	35	12	20.0
neutral	22	1	16	8	1	9.6
dissatisfied	4	1	-	-	-	1.0
very dissatisfied	1	-	1	-	-	0.4

In general

- The participants filled questionnaires as advisor/consultant or farmer/student have all species in the farms with exception of pigs in Turkey. They are not big sized farm represent rural farms with small scaled.
- Mean total farm area was 32.34 ha for five partner countries. The largest are is in Hungary (67 ha) and smallest are is in Turkey (9.7 ha) and Poland (10.02 ha). The mean largest area is for pasture/grasland (11.99 ha) followed concentrate farming area with 11.49 ha. No pasture/grassland area in Turkey.
- The majority of forages used in livestock nutrition is produced in the farms. However, most of concentrate used in livestock nutrition can't be produced in the farms. The farmers purchase the concentrates from feed manufacturers.
- 48.6% of farms have livestock advisors provide their service in the farm.
- Animal nutrition expert/Veterinarian,
- The majority of Animal nutrition expert/Veterinarian is the hishest group who provide animal nutrition counselling in the farm followed agriculture/livestock advisor and feedstuffs sales rep.
- The majority of farms satisfied with animal nutrition counselling service.

3. General information about farm advisory system and an average farm structure where survey participant is external consultant

The respondents from to the questions in “Part II. B. “GENERAL INFORMATION ABOUT FARM ADVISORY SYSTEM AND AN AVERAGE FARM STRUCTURE WHERE SURVEY PARTICIPANT IS EXTERNAL CONSULTANT” from 1 to 6 were given in Table 3.

In Poland the highest rate for animal nutrition consultancy service provide consultancy for dairy cattle with 16 respondents followed pigs with 11 respondents.



The predominant animal production in the farms where they provide animal feeding consultancy the scale for dairy cattle and pigs with 5.7 and 5.4 followed beef cattle with 4.3 scale.

The most important difficult issues for farmers related to rational livestock nutrition are:

- compose a suitable composition of the compound feed,
- cheap place for agricultural and animal products,
- the use of low-quality feed,
- waste feed quality and raw waste feed.

The most common mistakes made in animal nutrition by farmers are:

- balanced ration in terms of protein and energy,
- lack of cattle categorize groups of nutritional,
- too little water for watering animals,
- lack of money for concentrates,
- expensive vitamins,
- lack of information on the composition of their own feed saving,
- selecting the cheapest feed without paying attention to quality,
- use of inappropriate components for poultry,
- farmers do not use modern media sources (e.g. Internet),
- bad deficiency of minerals,
- limited use of fodder additives,
- underestimation of the energy value,
- relative to demand food animal fodder vagueness,
- lack of knowledge, to little fodder,
- farmers don't have money for more fodder.

In Turkey animal nutrition consultancy service mostly (48 respondents) provide consultancy for dairy cattle, followed beef cattle (8).

The predominant animal production in farm where they provide animal feeding consultancy the scale for dairy cattle is 5.7 followed beef cattle with score 4.6.

The most important difficult issues for farmers related to rational livestock nutrition are:

- lack of knowledge about nutrient contents of feeds and requirements of animals,
- and diet formulation programs.

The most common mistakes made in animal nutrition by farmers are:

- do not measure feeds for requirements of animals,
- do not make grouping for each production steps,
- lack of knowledge on diet formulation,
- use of high proportion of concentrate feeds in animal nutrition,
- lack of knowledge on feed additives

In Italy animal nutrition consultancy service provide consultancy for every animal species. The highest rate is for all species with 4 respondents.

The predominant animal production in farm where they provide animal feeding consultancy for dairy cattle and pigs are 5.0 scale followed beef cattle with score 4.5.

The most important difficult issues for farmers related to rational livestock nutrition are:

- production costs,
- low competence on specific issues,
- unfavourable seasons,
- dependency of feed firms
- and not adequate technical assistance.

The most common mistakes made in animal nutrition by farmers are:

- inadequate planning of activities,
- low tendency to address advisors
- and high dependency of feed firms.

In Hungary animal nutrition consultancy service provide consultancy mostly for pigs with 6 respondents followed dairy cattle, beef cattle and poultry with 5 respondents each.

The predominant animal production in farm where they provide animal feeding consultancy the scale for dairy cattle and sheep is 6 followed beef cattle and pigs with score 5.

The most important difficult issues for farmers related to rational livestock nutrition are:

- Feed quality: The most important things in animal husbandry are the type, the quality and quantity of the feed in order to produce huge quantity and good quality animal products with as low costs as possible. This provides for the farmer the later reproduction on an increasing scale.
- Animal welfare: On the one hand, animal welfare contributes to the healthy and long productivity of the animal, on the other hand, this is the basic condition for the healthy food material production.
- Market price: Animal nutrition, keeping, health condition and the quantitative and qualitative animal product production provide the optimum prime cost product production to which the market price, as a final factor, provides the profit.

The most common mistakes made in animal nutrition by farmers are

- Feed quality: The most common mistakes that farmers make usually happen during feed growing. These are: if the coarse fodder or the feed grain was harvested too early or too late; if the feed is dried or fermented in a wrong way; if the feed is contaminated with mould; if acetic acid fermentation occurs instead of butyric acid fermentation during feeding; if soil bacteria contaminated feed is fed; if the silage was exposed to the air (listeriosis, ruminal putrefaction etc.). Feeding moldy feed has unfavourable effects for the animals' hormone balance and reveals in reproduction disorders.
- Use of low quality feed due to high feed prices: In those years when the weather conditions are bad and the feed prices are high farmers may feed low quality or moldy feed as a cost reduction.
- Lack of information: The farmer does not want to introduce his/her bad routines to the special advisor because he/she is afraid of the extra costs of the information.

In Romania animal nutrition consultancy service provide consultancy mostly for pigs with 9 respondents followed dairy cattle and all species with 7 respondents.

The predominant animal production in farm where they provide animal feeding consultancy is for all species with 6 followed dairy cattle, pigs, poultry and beef cattle.

The most important difficult issues for farmers related to rational livestock nutrition are:

- high cost of ingredients, especially protein meals,
- nutritive value of the feeds,
- diet optimisation,
- feeds / ingredients quality,
- lack of professional education / technical information and nutritional requirement of the animals.
- feed digestibility, chemical analyses,
- variable cost of raw materials mainly of protein rich ingredients and dry seasons.
- market-related / economic issues
- difficulties in acquisition of protein ingredients,
- lack of funds / difficulties to access European funds,
- lack of market for the farm products,
- low price of milk compared to the forage,
- the farmers choose low cost ingredients without knowing

The most common mistakes made in animal nutrition by farmers are:

- inadequate planning of activities,
- lack of knowledge on animals' nutritive requirements,
- nutritive values of feeds and diet optimisation,
- using poor feedstuffs (low nutritive value and digestibility and low quality),
- inappropriate storage of feeds / ingredients,
- not using technical information (~ traditionalism, ignorance),
- not analysing feeds,
- deliberately overfeeding,
- mistakes related to the on-farm fabrication of compound feeds: homogeneity, etc., side effects of the intensive production and farm management.

In general

- The majority of animal species provide animal nutrition consultancy service is dairy cattle followed pigs and all species.
- Predominant animal production in farm where advisors provide consultancy are dairy cattle with 5.13 scale, beef cattle with 4.9 scale and sheep with 4.0 scale.

Table 3. General information about farm advisory system and an average farm structure where survey participant is external consultant

Category	Poland	Turkey	Italy	Hungary	Romania	
Number of participants	145	60		33	22	Means
Animal species provide animal nutrition consultancy service:						
All livestock	4	6	4	5	7	5.2
Dairy cattle	16	41	1	5	7	14.0
Beef cattle	7	8	3	2	5	5.0
Pigs	11	-	1	6	9	5.4
Sheep	8	2	3	3	3	3.8
Goat	4	1	3	2	5	3.0
Poultry	10	2	2	5	6	5.0
Other	3	-	-	-	3	1.2
Predominant animal production in farm where you provide consultancy. (scale 1 to 6)						
All livestock	-	1.4	2.5	6	6	3.18
Dairy cattle	5.7	5.7	5.0	5	5.67	5.13
Beef cattle	4.3	4.6	4.5	5	5	4.9
Pigs	5.4	-	5.0	6	5.18	4.07
Sheep	4.2	3.4	3.5	3	4.4	3.7
Goat	3.8	1.6	1.5	4	3.67	2.91
Poultry	4.0	1.2	3.0	-	5.1	2.66
Other	3.1	-	-	-	4.75	1.57

4. Rational livestock nutrition in rural areas

The categories of livestock nutrition questionnaire are divided 7 main categories (Table 4).

Table 4. Various categories of Rational Livestock Nutrition in Rural Areas

Categories		Questions
I:	Chemical composition and feed value of feedstuffs	1 to 3
II:	Physiology of nutrition	4 to 5
III:	Feedstuffs, feed additives and their usage in animal nutrition	6 to 10
IV:	Feedstuffs production, processing and storage	11 to 14
V:	Livestock feeding systems	15 to 25
VI:	Livestock health, welfare and quality of animal origin products	26 to 30
VII:	Livestock management and environment	31 to 35
		35

About proportion of positive responses (Y) to questions for advisors/consultants (Table 5) and for farmers/students (Table 6) shows:

In Poland proportion of positive responses (Y) to questions for advisors/consultants and for farmers/students are **77.58%** and 33.72%, respectively.

In Turkey proportion of positive responses (Y) to questions for advisors/consultants and for farmers/students are 81.93% and 80.51%, respectively.

In Italy proportion of positive responses (Y) to questions for advisors/consultants and for farmers/students are 93.25% and 88.83%, respectively.

In Hungary proportion of positive responses (Y) to questions for advisors/consultants and for farmers/students are 56.06% and 28.18%, respectively.

In Romania proportion of positive responses (Y) to questions for advisors/consultants and for farmers/students are 88.70% and 32.11%, respectively.

Table 5. Proportion of **positive responses (Y) to questions** (for advisors/consultants) on the need of skills in the need analysis survey in different countries.

Individual questions		Poland	Turkey	Italy	Hungary	Romania	Mean
Total number of participants:		145	60	12	48	62	65.4
I:	CHEMICAL COMPOSITION AND FEED VALUE OF FEEDSTUFFS						
1	Nutrients (e.g. dry matter, crude ash, crude protein, true protein, crude fibre: NDF, ADF, ADL, water soluble carbohydrates, crude fat)	120	57	11	38	62	
2	Energy, protein and feed value of feedstuffs	122	55	11	38	62	
3	Feedstuffs digestibility (e.g. factors affecting digestibility and methods of estimation at farm environment)	110	54	10	23	62	
II:	PHYSIOLOGY OF NUTRITION						
4	Nutrients digestion and metabolism	118	58	11	18	62	
5	Gastrointestinal tract of livestock and physiology of nutrition (e.g. feeding behaviour, voluntary feed and water intake, factors affecting VDM)	117	56	11	18	62	
III:	FEEDSTUFFS, FEED ADDITIVES AND THEIR USAGE IN ANIMAL NUTRITION						
6	Forages (e.g. fresh forages, silages, hays, straws, whole crop cereals, roots, tubers)	112	58	11	41	57	
7	Concentrates (e.g. energy concentrates, protein concentrates)	119	59	11	42	62	
8	By-products of various industry branches (e.g. meals, cakes, DDGS)	111	60	11	28	60	
9	Non-protein nitrogen compounds (e.g. urea)	95	58	11	33	56	
10	Feed additives (e.g. minerals,	119	60	11	38	62	

	<i>vitamins, synthetic amino acids, probiotics, prebiotics, eubiotics, antioxidants etc.)</i>						
IV:	FEEDSTUFFS PRODUCTION, PROCESSING AND STORAGE						
11	Feedstuffs production (<i>e.g. sowing, crop</i>)	119	46	11	38	52	
12	Pasture/grasslands management	107	11	11	37	52	
13	Feedstuffs processing methods (<i>e.g. drying, grinding, crushing, pelleting, soaking, heat treatment, chaffing, alkali treatment</i>)	116	53	11	41	58	
14	Feedstuffs storage methods to prevent feeds quality deterioration and loss	115	57	11	38	60	
V:	LIVESTOCK FEEDING SYSTEMS						
15	Fundamentals of animal diet formulation	120	60	11	38	61	
16	Livestock feeding systems used in EU (<i>e.g. DLG, INRA, NRC</i>)	122	42	11	33	59	
17	Animal nutrition systems	110	57	10	28	55	
18	Feeding and nutrition of dairy cattle	110	57	11	15	51	
19	Feeding and nutrition of beef cattle	118	47	11	15	46	
20	Feeding and nutrition of small ruminants (sheep, goat)	117	24	11	13	43	
21	Feeding and nutrition of pigs	112	-	10	18	44	
22	Feeding and nutrition of poultry	112	4	11	21	46	
23	Feeding and nutrition of horses	119	-	10	8	35	
24	Feeding and nutrition of rabbits	111	-	10	8	36	
25	Feeding and nutrition of other animals (what species)	95	-	3	-	25	
VI:	LIVESTOCK HEALTH, WELFARE AND QUALITY OF ANIMAL ORIGIN PRODUCTS						
26	Livestock metabolic disorders (<i>e.g.</i>	119	60	11	13	61	

	<i>causes and nutritional method of prophylactic)</i>						
27	Toxicities in livestock animals (<i>e.g. mineral toxicities, poisonous plants, mycotoxins, feed and environmental contaminants</i>)	119	56	11	18	60	
28	Antinutritional substances in feeds and their effects on livestock (<i>e.g. phytates, beta-glucans, saponins, solanine</i>)	107	44	11	20	58	
29	Welfare of livestock (<i>e.g. feeding passage, feeding table, drinkers</i>)	116	58	11	23	62	
30	Animal nutrition as the main factor affecting animal origin products quality	115	59	11	18	62	
VII	LIVESTOCK MANAGEMENT AND ENVIRONMENT						
31	Economic aspects of livestock nutrition in rural Europe (<i>cost management</i>)	106	45	10	41	57	
32	Feed calculation in advance - a schedule of feedstuffs requirement for all livestock in farm within a year	106	59	10	40	59	
33	Effects of climate on livestock physiology and productivity	107	42	11	28	60	
34	European environmental good practice and livestock nutrition	103	24	10	28	59	
35	National and European feed laws for livestock	84	44	11	18	59	
%		77.58 %	81.93 %	93.25 %	56.06 %	88.70 %	79.50 %
Means		112.30	49.16	11,19	26.91	55.05	50.92
Max values		122	60	12	42	62	
Min values		84	4	3	8	25	
Standard deviation		8.64	14.64	1.56	10.85	9.11	8.96

In general

- Participants in the questionnaire survey generally responded positively to the need for more skill or knowledge in the different fields of livestock nutrition in rural areas.



- Proportion of positive responses (Y) to questions for advisors/consultants on the need of skills ranged on average from 56.06% in Hungary to 93.25 % in Turkey. The means of countries for this category is 79.50 %.
- Proportion of positive responses (Y) to questions for farmers/students on the need of skills ranged on average from 28.18% in Hungary to 93.25 % in Turkey. The means of countries for this category is 87.83% in Italy. The means of countries for this category is 54.47%.
- It can be concluded that participants were on the opinion that there was a substantial scope for improving their skills or knowledge on the various categories within the livestock nutrition. Difference were observed between countries and between categories, which in most cases can be explained by different needs of participants due to different types of livestock farming in the countries.

Table 6. Proportion of positive responses (Y) to questions (farmers/students) on the need of skills in the need analysis survey in different countries

Individual questions		Poland	Turkey	Italy	Hungary	Romania	Means
Total number of participants:		145	60	12	21	22	51.8
I:	CHEMICAL COMPOSITION AND FEED VALUE OF FEEDSTUFFS						
1	Nutrients (<i>e.g. dry matter, crude ash, crude protein, true protein, crude fibre: NDF, ADF, ADL, water soluble carbohydrates, crude fat</i>)	58	58	11	41	22	
2	Energy, protein and feed value of feedstuffs	58	52	11	40	22	
3	Feedstuffs digestibility (<i>e.g. factors affecting digestibility and methods of estimation at farm environment</i>)	57	51	10	28	22	
II:	PHYSIOLOGY OF NUTRITION						
4	Nutrients digestion and metabolism	57	54	11	7	20	
5	Gastrointestinal tract of livestock and physiology of nutrition (<i>e.g. feeding behaviour, voluntary feed and water intake, factors affecting VDM</i>)	56	56	11	8	22	

III:	FEEDSTUFFS, FEED ADDITIVES AND THEIR USAGE IN ANIMAL NUTRITION						
6	Forages (<i>e.g. fresh forages, silages, hays, straws, whole crop cereals, roots, tubers</i>)	56	47	11	21	21	
7	Concentrates (<i>e.g. energy concentrates, protein concentrates</i>)	56	56	11	21	20	
8	By-products of various industry branches (<i>e.g. meals, cakes, DDGS</i>)	55	60	11	18	19	
9	Non-protein nitrogen compounds (<i>e.g. urea</i>)	55	59	11	19	17	
10	Feed additives (<i>e.g. minerals, vitamins, synthetic amino acids, probiotics, prebiotics, eubiotics, antioxidants etc.</i>)	54	60	11	21	21	
IV:	FEEDSTUFFS PRODUCTION, PROCESSING AND STORAGE						
11	Feedstuffs production (<i>e.g. sowing, crop</i>)	53	47	11	21	21	
12	Pasture/grasslands management	52	7	11	21	19	
13	Feedstuffs processing methods (<i>e.g. drying, grinding, crushing, pelleting, soaking, heat treatment, chaffing, alkali treatment</i>)	52	49	11	21	21	
14	Feedstuffs storage methods to prevent feeds quality deterioration and loss	54	56	11	15	22	
V:	LIVESTOCK FEEDING SYSTEMS						
15	Fundamentals of animal diet formulation	49	60	11	19	22	
16	Livestock feeding systems used in EU (<i>e.g. DLG, INRA, NRC</i>)	51	54	11	19	18	

17	Animal nutrition systems	53	60	10	21	19	
18	Feeding and nutrition of dairy cattle	51	59	11	15	21	
19	Feeding and nutrition of beef cattle	51	51	11	15	18	
20	Feeding and nutrition of small ruminants (sheep, goat)	51	40	11	12	19	
21	Feeding and nutrition of pigs	50	-	10	16	20	
22	Feeding and nutrition of poultry	46	13	11	18	20	
23	Feeding and nutrition of horses	45	1	10	7	17	
24	Feeding and nutrition of rabbits	41	-	10	5	18	
25	Feeding and nutrition of other animals (what species)	30	-	3	0	13	
VI:	LIVESTOCK HEALTH, WELFARE AND QUALITY OF ANIMAL ORIGIN PRODUCTS						
26	Livestock metabolic disorders (e.g. causes and nutritional method of prophylactic)	53	60	11	10	19	
27	Toxicities in livestock animals (e.g. mineral toxicities, poisonous plants, mycotoxins, feed and environmental contaminants)	33	59	11	12	19	
28	Antinutritional substances in feeds and their effects on livestock (e.g. phytates, beta-glucans, saponins, solanine)	30	53	11	11	18	
29	Welfare of livestock (e.g. feeding passage, feeding table,	53	57	11	12	22	

	<i>drinkers</i>)						
30	Animal nutrition as the main factor affecting animal origin products quality	27	55	11	11	22	
VII:	LIVESTOCK MANAGEMENT AND ENVIRONMENT						
31	Economic aspects of livestock nutrition in rural Europe (<i>cost management</i>)	43	24	10	21	21	
32	Feed calculation in advance - a schedule of feedstuffs requirement for all livestock in farm within a year	53	56	10	21	21	
33	Effects of climate on livestock physiology and productivity	54	42	11	18	21	
34	European environmental good practice and livestock nutrition	53	44	10	17	20	
35	National and European feed laws for livestock	53	46	11	10	20	
%		33.72%	80.51%	87.83%	28.18%	32.11%	54.47%
Means		49.8	48.31	10.54	16.91	19.91	
Max values		58	60	11	41	22	
Min values		27	1	3	0	13	
Standard deviation		8.21	15.56	1.37	8.32	1.94	7.08

About results on the current **knowledge/ skill levels scores** on individual questions for *advisors/consultants and farmers/students*, in separate countries and all the countries combined (Table 7 and Table 8) shows:

In Poland results on the current knowledge/skill levels scores on individual questions for *advisors/consultants* and farmers/students are 3.97 and 2.79, respectively.

In Turkey results on the current knowledge/ skill levels scores on individual questions for *advisors/consultants* and farmers/students are 3.67 and 2.57, respectively.

In Italy results on the current knowledge/ skill levels scores on individual questions for *advisors/consultants* and farmers/students are 2.97 and 2.53, respectively.

In Hungary results on the current knowledge/ skill levels scores on individual questions for *advisors/consultants* and farmers/students are 3.95 and 2.85, respectively.



In Romania results on the current knowledge/ skill levels scores on individual questions for advisors/consultants and farmers/students are 3.43 and 2.84, respectively.

Table 7. Results on on the current knowledge/ skill levels scores on individual questions for **advisors/consultants**, in seperate countries and all the countries combined

Individual questions		Poland	Turkey	Italy	Hungary	Romania	Means
Total Participant Number:		145	60	12	48	62	65.4
I:	CHEMICAL COMPOSITION AND FEED VALUE OF FEEDSTUFFS						
1	Nutrients (<i>e.g. dry matter, crude ash, crude protein, true protein, crude fibre: NDF, ADF, ADL, water soluble carbohydrates, crude fat</i>)	3.96	3.85	3.42	3.78	3.52	
2	Energy, protein and feed value of feedstuffs	3.92	3.90	3.0	3.67	3.52	
3	Feedstuffs digestibility (<i>e.g. factors affecting digestibility and methods of estimation at farm environment</i>)	3.96	3.71	3.42	3.83	3.26	
Means		3.94	3.82	3.28	3.76	4.43	3.84
II:	PHYSIOLOGY OF NUTRITION						
4	Nutrients digestion and metabolism	3.96	3.66	3.58	3.87	3.21	
5	Gastrointestinal tract of livestock and physiology of nutrition (<i>e.g. feeding behaviour, voluntary feed and water intake, factors affecting VDM</i>)	3.92	3.96	3.75	3.92	3.4	
Means		3.94	3.81	3.66	3.89	3.30	3.72
III:	FEEDSTUFFS, FEED ADDITIVES AND THEIR USAGE IN ANIMAL NUTRITION						
6	Forages (<i>e.g. fresh forages, silages,</i>	4.12		3.58	4.26		

	<i>hays, straws, whole crop cereals, roots, tubers)</i>		4.25			3.7	
7	Concentrates (<i>e.g. energy concentrates, protein concentrates</i>)	4.33	4.26	3.42	4.12	3.69	
8	By-products of various industry branches (<i>e.g. meals, cakes, DDGS</i>)	4.05	3.46	3.50	3.89	3.27	
9	Non-protein nitrogen compounds (<i>e.g. urea</i>)	3.92	3.73	3.08	3.87	2.93	
10	Feed additives (<i>e.g. minerals, vitamins, synthetic amino acids, probiotics, prebiotics, eubiotics, antioxidants etc.</i>)	3.98	3.78	3.08	3.94	3.53	
Means		4.08	3.89	3.33	4.01	3.42	3.74
IV:	FEEDSTUFFS PRODUCTION, PROCESSING AND STORAGE						
11	Feedstuffs production (<i>e.g. sowing, crop</i>)	4.16	4.00	3.50	4.36	3.6	
12	Pasture/grasslands management	4.03	3.76	3.67	4.12	3.25	
13	Feedstuffs processing methods (<i>e.g. drying, grinding, crushing, pelleting, soaking, heat treatment, chaffing, alkali treatment</i>)	3.97	4.31	3.50	3.97	3.34	
14	Feedstuffs storage methods to prevent feeds quality deterioration and loss	3.87	4.26	3.50	4.01	3.7	
Means		4.00	4.08	3.54	4.11	3.47	3.84
V:	LIVESTOCK FEEDING SYSTEMS						
15	Fundamentals of animal diet formulation	3.92	3.91	3.55	3.98	3.41	
16	Livestock feeding systems used in EU (<i>e.g. DLG, INRA, NRC</i>)	3.77	3.05	3.36	3.67	2.92	
17	Animal nutrition systems	3.68	3.51	2.70	3.86	2.93	
18	Feeding and nutrition of dairy cattle	3.72	4.20	3.25	3.78	3.51	
19	Feeding and nutrition of beef cattle	4.08	4.10	3.33	3.92	3.2	
20	Feeding and nutrition of small ruminants (sheep, goat)	3.89	3.56	3.09	3.94	3.44	

21	Feeding and nutrition of pigs	4.14	-	2.75	3.85	3.61	
22	Feeding and nutrition of poultry	3.98	2.96	2.90	3.78	3.54	
23	Feeding and nutrition of horses	3.51	2.76	2.50	3.52	2.66	
24	Feeding and nutrition of rabbits	3.45	2.68	2.90	3.67	2.83	
25	Feeding and nutrition of other animals (what species)	3.02	-	2	3.25	3.08	
Means		3.74	3.32	2.93	3.74	3.19	3.38
VI:	LIVESTOCK HEALTH, WELFARE AND QUALITY OF ANIMAL ORIGIN PRODUCTS						
26	Livestock metabolic disorders (<i>e.g. causes and nutritional method of prophylactic</i>)	4.02	3.51	3.18	3.56	3.36	
27	Toxicities in livestock animals (<i>e.g. mineral toxicities, poisonous plants, mycotoxins, feed and environmental contaminants</i>)	3.78	3.83	3.45	3.32	3.42	
28	Antinutritional substances in feeds and their effects on livestock (<i>e.g. phytates, beta-glucans, saponins, solanine</i>)	3.74	3.66	2.64	3.24	2.91	
29	Welfare of livestock (<i>e.g. feeding passage, feeding table, drinkers</i>)	4.23	4.3	3.55	4.01	3.97	
30	Animal nutrition as the main factor affecting animal origin products quality	4.17	4.11	2.18	3.89	3.81	
Means		3.98	3.88	3.00	3.60	3.48	3.58
VII:	LIVESTOCK MANAGEMENT AND ENVIRONMENT						
31	Economic aspects of livestock nutrition in rural Europe (<i>cost management</i>)	3.89	3.8	3.09	3.76	3.4	
32	Feed calculation in advance - a schedule of feedstuffs requirement for all livestock in farm within a year	4.12	3.16	2.82	3.84	3.86	
33	Effects of climate on livestock physiology and productivity	3.98	3.83	3.33	4.16	3.58	

34	European environmental good practice and livestock nutrition	3.87	2.83	3.09	3.88	3.2	
35	National and European feed laws for livestock	4.02	3.2	2.55	4.11	3.15	
Means		3.97	3.36	2.97	3.95	3.43	
Means		3.92	3.67	3.16	3.84	3.39	3.53
Max values		4.33	4.31	3.75	4.36	3.97	3.59
Min values		3.02	2.68	2	3.24	2.36	
Standard deviation		0.22	0.46	0.40	0.24	0.31	0.32

In general

- The current knowledge/skill scores in the different countries for **advisors/consultants** ranged from 2.97 in Italy to 3.97 in Poland
- Participants in the survey rated on average their current knowledge/ skill levels as 3.59 on individual questions for **advisors/consultants** in all the countries combined which is close to the value of 4 (adequate skills).
- Within different livestock nutrition categories the lowest skill score values for **advisors/consultants** are 3.38 in the “LIVESTOCK FEEDING SYSTEMS” category (category V) but the highest scores were obtained in the “CHEMICAL COMPOSITION AND FEED VALUE OF FEEDSTUFFS “ category (category I) and the “FEEDSTUFFS PRODUCTION, PROCESSING AND STORAGE” category (category IV) (3.84).
- The current knowledge/skill scores in the different countries for **farmers/students** ranged from 2.18 in Turkey to 2.94 in Poland
- Participants in the survey rated on average their current knowledge/ skill levels as 2.73 on individual questions for **farmers/students** in all the countries combined which is close to the value of 3.
- Within different livestock nutrition categories the lowest skill score values for **farmers/students** are 2.31 in the “CHEMICAL COMPOSITION AND FEED VALUE” category (category I) but the highest score was obtained in the “FEEDSTUFFS PRODUCTION, PROCESSING AND STORAGE “ category (category IV) (2.93).

Table 8. Results on the current knowledge/ skill levels scores on individual questions for farmers/students, in separate countries and all the countries combined

Individual questions		Poland	Turkey	Italy	Hungary	Romania	Means
	Participant number	145	60	11	21	22	51.8
I:	CHEMICAL COMPOSITION AND FEED VALUE OF FEEDSTUFFS						
1	Nutrients (e.g. dry matter, crude ash, crude protein, true protein, crude fibre: NDF, ADF, ADL, water soluble carbohydrates, crude fat)	2.23	2.40	1.73	2.72	2.36	
2	Energy, protein and feed value of feedstuffs	2.67	2.26	1.82	3.06	2.32	
3	Feedstuffs digestibility (e.g. factors affecting digestibility and methods of estimation at farm environment)	2.45	1.96	1.60	3.11	2.14	
Mean		2.45	2.20	1.71	2.96	2.27	2.31
II:	PHYSIOLOGY OF NUTRITION						
4	Nutrients digestion and metabolism	2.69	2.88	2.27	2.57	2.5	
5	Gastrointestinal tract of livestock and physiology of nutrition (e.g. feeding behaviour, voluntary feed and water intake, factors affecting VDM)	2.23	2.36	2.27	2.65	2.45	
Mean		2.46	2.62	2.27	2.61	2.47	2.48
III:	FEEDSTUFFS, FEED ADDITIVES AND THEIR USAGE IN ANIMAL NUTRITION						
6	Forages (e.g. fresh forages, silages, hays, straws, whole crop cereals, roots, tubers)	3.26	3.73	2.82	3.15	2.71	
7	Concentrates (e.g. energy concentrates, protein concentrates)	2.87	2.83	2.45	2.73	3.2	
8	By-products of various industry branches (e.g. meals, cakes, DDGS)	3.11	2.48	2.01	2.98	2.47	
9	Non-protein nitrogen compounds (e.g. urea)	2.74	2.51	1.73	2.54	2.41	
10	Feed additives (e.g. minerals,	2.98	2.43	1.82	2.46	2.62	

	<i>vitamins, synthetic amino acids, probiotics, prebiotics, eubiotics, antioxidants etc.)</i>						
Mean		2.99	2.79	2.16	2.77	2.68	2.67
IV:	FEEDSTUFFS PRODUCTION, PROCESSING AND STORAGE						
11	Feedstuffs production (<i>e.g. sowing, crop</i>)	2.97	3.15	3.36	3.45	2.67	
12	Pasture/grasslands management	2.78	3.28	3.18	3.24	2.89	
13	Feedstuffs processing methods (<i>e.g. drying, grinding, crushing, pelleting, soaking, heat treatment, chaffing, alkali treatment</i>)	2.69	2.00	2.73	3.51	2.86	
14	Feedstuffs storage methods to prevent feeds quality deterioration and loss		3.05	2.91	2.98	3.14	
Mean		2.81	2.87	2.80	3.29	2.89	2.93
V:	LIVESTOCK FEEDING SYSTEMS						
15	Fundamentals of animal diet formulation	2.76	2.41	2.82	2.67	2.55	
16	Livestock feeding systems used in EU (<i>e.g. DLG, INRA, NRC</i>)	3.12	2.15	2.18	2.18	2.56	
17	Ecology animal nutrition systems	3.28	2.66	1.70	3.26	2.68	
18	Feeding and nutrition of dairy cattle	2.78	3.08	2.91	3.09	2.71	
19	Feeding and nutrition of beef cattle	3.07	2.98	2.82	3.12	2.94	
20	Feeding and nutrition of small ruminants (sheep, goat)	3.02	3.78	2.91	3.34	3.0	
21	Feeding and nutrition of pigs	2.65	-	3.30	3.26	3.3	
22	Feeding and nutrition of poultry	2.62	3.08	3.36	2.78	3.25	
23	Feeding and nutrition of horses	2.78	2.56	2.50	2.87	2.65	
24	Feeding and nutrition of rabbits	-	2.45	3.10	2.66	2.94	
25	Feeding and nutrition of other animals (what species)	2.78	-	2.01	2.68	2.46	
Mean		2.88	2.79	2.69	2.78	2.82	2.79
VI:	LIVESTOCK HEALTH, WELFARE AND QUALITY OF ANIMAL ORIGIN PRODUCTS						
26	Livestock metabolic disorders (<i>e.g.</i>	2.76	2.46	2.64	2.54	2.56	

	<i>causes and nutritional method of prophylactic)</i>						
27	Toxicities in livestock animals (e.g. mineral toxicities, poisonous plants, mycotoxins, feed and environmental contaminants)	2.78	2.25	2.45	2.36	2.79	
28	Antinutritional substances in feeds and their effects on livestock (e.g. phytates, beta-glucans, saponins, solanine)	1.78	2.31	1.82	2.01	2.53	
29	Welfare of livestock (e.g. feeding passage, feeding table, drinkers)	2.87	2.95	2.55	2.64	2.33	
30	Animal nutrition as the main factor affecting animal origin products quality	3.02	2.70	2.91	2.98	3.36	
Mean		2.64	2.53	2.47	2.50	2.71	2.57
VII:	LIVESTOCK MANAGEMENT AND ENVIRONMENT						
31	Economic aspects of livestock nutrition in rural Europe (<i>cost management</i>)	2.74	2.21	2.60	2.56	3.0	
32	Feed calculation in advance - a schedule of feedstuffs requirement for all livestock in farm within a year	3.26	1.61	2.60	3.11	3.19	
33	Effects of climate on livestock physiology and productivity	2.87	3.13	2.27	2.76	2.95	
34	European environmental good practice and livestock nutrition	3.11	1.41	2.60	3.06	2.65	
35	National and European feed laws for livestock	2.74	2.56	2.60	2.72	2.45	
Mean		2.94	2.18	2.53	2.84	2.84	2.66
Means		2.79	2.57	2.47	2.85	3.00	2.73
Max values		3.28	3.78	3.36	3.51	3.19	
Min values		1.78	1.41	1.60	2.01	2.95	
Standard deviation		0.28	0.55	0.49	0.33	2.65	0.86

Conclusions

The analysis of the individual scores resulted from the self-assessment of the advisors/consultants and farmers/students led to the following conclusions:

- Scores of increasing knowledge and skills within the various fields or categories of livestock nutrition in rural areas varied between categories. When combining data from all the nations the lowest scores for **advisor/consultant** were on category-V “LIVESTOCK FEEDING SYSTEMS”. In contrast the highest score was for category- I, “CHEMICAL COMPOSITION AND FEED VALUE OF FEEDSTUFFS “ and for category-IV, “FEEDSTUFFS PRODUCTION, PROCESSING AND STORAGE”.
- When combining data from all the nations the lowest scores for **farmers/students** were on category-I “CHEMICAL COMPOSITION AND FEED VALUE”. In contrast the highest score was for category- IV, “FEEDSTUFFS PRODUCTION, PROCESSING AND STORAGE “
- Large variation in scores was observed between the participating countries.
- The most important field or categories of livestock nutrition that should be prioritized to improve knowledge or skills of individuals with interest in livestock farming also varied between countries.
- The lowest average for the knowledge of **advisors/consultants** was recorded for category-IV (LIVESTOCK FEEDING SYSTEMS). This is a logical results and not very useful for setting the priorities, because many people may be declared themselves as being specialised, not generalist. Therefore they gave themselves good scores for the species they are specialised for and low scores for the others.
- For the general hierarchy of the detailed fields of knowledge, the answers related to the livestock systems were extracted from the analysis, as they are contaminated by the species specialisation effects (e.g. a specialist in dairy cows knows less about poultry). However, the livestock systems related answers lead already to a first conclusion: knowledge may be needed on “minor” species.
- The lowest knowledge of **farmers/advisors** was recorded for the category-I (CHEMICAL COMPOSITION AND FEED VALUE OF FEEDSTUFFS). The second lowest for the category-II (*Physiology of nutrition*). However, the highest score was obtained for category-IV (FEEDSTUFFS PRODUCTION, PROCESSING AND STORAGE).
- Surprisingly, the highest score was obtained in category-I for advisors/consultants but the lowest score for farmers/students was obtained from the same category (category-1).

In response to the information gathered by the partners by the way of need analyses we can propose to arrange the content of the LIVENUTRITION project in **5 modules**.

The titles of these 5 elected modules are:

1. **Module 1.** Feedstuffs and Feed Additives- **WUELS and ARID Lacjum, PL**
2. **Module 2.** Physiology of Nutrition- **Foundation of Knowledge, HU**
3. **Module 3.** Livestock Feeding Systems in EU- **INCDBNA, RO**
4. **Module 4.** Aspect of Livestock Health, Welfare, Nutritional Disorders and Quality of Animal Origin Products-**BAU and COMU, TR**
5. **Module 5.** Livestock Management and Environment- **CIA Umbria, IT**

“These 5 modules are also cover the proposed teaching materials in reveal areas of the project”

These 5 sections of the professional knowledge and experience can be further divided in units which could be presented as short courses focussing on a particular aspect or issue. The proposal modules will be developed in the project phase: Q3A1- TRAINING CONTENTS DEVELOPMENT.

Annex I. Questionnaire

Part I

PARTICIPANT'S PERSONAL DATA

1. Name and surname [optional]¹:

Name of the farm/company [optional]:

Address, phone, e-mail [optional]:

2. Participant's age:

18-30

31-45

46-60

>60

3. Gender:

Female

Male

4. Education:

Primary

Vocational

High School

Higher Education

5. Employment status:

Farm owner

Student

Work Contract
(what position):

External consultant
(what type):

6. Experience in livestock farming or consultancy/teaching (no. of years):

<1

1-5

6-10

11-20

>20

Part II

A. GENERAL INFORMATION ABOUT FARM STRUCTURE²

1. Species/number of livestock:

¹ This questionnaire is committed to user privacy. Personal data will not be published or diffused. The policy on "protection of individuals with regard to the processing of personal data by the Community institutions" is based on Regulation (EC) N° 45/2001 of the European Parliament and of the Council of 18 December 2000 and/or national law on privacy.

² fill only if you are farm owner, farm worker

- Dairy cattle
 Beef cattle
 Pigs
 Sheep
 Goat
 Poultry (what species)
 Other (what species)

.....
.....

2. Farm area:

- Total [ha]
 Pastures/ grasslands [ha]
 Forages growing [ha]
 Concentrates growing [ha]

3. What percent of forages used in livestock nutrition is produced in the farm:

- 100-75%
 75-50%
 50-25%
 <25%

4. Please write the reasons why you purchase forages, if any:

.....
.....
.....

5. What percent of concentrates used in livestock nutrition is produced in the farm:

- 100-75%
 75-50%
 50-25%
 <25%

6. Please write the reasons why you purchase concentrate, if any:

.....
.....
.....

7. Do any livestock advisors provide their service in the farm:

- Yes
 No

8. Who does provide animal nutrition counselling in the farm:

- Animal nutrition expert/Veterinarian
 Agriculture/Livestock advisor
 Feedstuffs sales rep
 Other (who)

9. Are you satisfied with animal nutrition counselling service:

- very satisfied
 satisfied
 neutral
 dissatisfied
 very dissatisfied

10. Writing few sentences, please explain why:

.....
.....



.....

B. GENERAL INFORMATION ABOUT FARM ADVISORY SYSTEM AND AN AVERAGE FARM STRUCTURE WHERE SURVEY PARTICIPANT IS EXTERNAL CONSULTANT³

1. In what region of country do you provide animal nutrition counselling:

.....

2. What animal species do you provide animal nutrition consultancy service:

All livestock Dairy cattle Beef cattle Pigs Sheep Goat Poultry (what species) Other (what species)

3. What is the predominant animal production in farm where you provide animal feeding consultancy. Use the scale 1 to 6 where 1 is the least important and 6 the most important:

Dairy cattle Beef cattle Pigs Sheep Goat Poultry (what species) Other (what species)

.....

4. What, in your opinion, are the most important difficult issues for farmers related to rational livestock nutrition

.....

5. What, in your opinion, are the most common mistakes made in animal nutrition by farmers

.....

³ fill only if you are external livestock consultant, agricultural advisor, commercial feeds sales rep. etc. or livestock nutrition teacher or lecturer



Part III

RATIONAL LIVESTOCK NUTRITION IN RURAL AREAS

Please express your opinion about each livestock nutrition knowledge/skills area. If you consider it as **necessary** for your professional responsibilities please **circle letter Y**, if **no** – letter **N**.

Additionally, on the scale 1 to 5

(1 – very poor; 2 – needs much improvement; 3 – average, needs improvement; 4 – good; 5 – very good) please **tick one box in each row** to rate your or farmers'/students' whom you provide farm advisory/teaching service⁴ knowledge/skills in following areas of animal nutrition.

Skill/Knowledge area	How would you rate level of your knowledge/skills in this area	How would you rate level of farmers'/students' knowledge/skills in this area ⁴
I. CHEMICAL COMPOSITION AND FEED VALUE OF FEEDSTUFFS		
1. Nutrients (e.g. dry matter, crude ash, crude protein, true protein, crude fibre: NDF, ADF, ADL, water soluble carbohydrates, crude fat)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
2. Energy, protein and feed value of feedstuffs	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
3. Feedstuffs digestibility (e.g. factors affecting digestibility and methods of estimation at farm environment)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
II. PHYSIOLOGY OF NUTRITION		
4. Nutrients digestion and metabolism	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
5. Gastrointestinal tract of livestock and physiology of nutrition (e.g. feeding behaviour, voluntary feed and water intake, factors affecting VDM)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
III. FEEDSTUFFS, FEED ADDITIVES AND THEIR USAGE IN ANIMAL NUTRITION		
6. Forages (e.g. fresh	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5

⁴ fill only if you are external livestock consultant, agricultural advisor, commercial feeds sales rep. etc. or livestock nutrition teacher or lecturer

<i>forages, silages, hays, straws, whole crop cereals, roots, tubers)</i>		
7. Concentrates (e.g. energy concentrates, protein concentrates)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
8. By-products of various industry branches (e.g. meals, cakes, DDGS)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
9. Non-protein nitrogen compounds (e.g. urea)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
10. Feed additives (e.g. minerals, vitamins, synthetic amino acids, probiotics, prebiotics, eubiotics, antioxidants etc.)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5

IV. FEEDSTUFFS PRODUCTION, PROCESSING AND STORAGE

11. Feedstuffs production (e.g. sowing, crop)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
12. Pasture/grasslands management	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
13. Feedstuffs processing methods (e.g. drying, grinding, crushing, pelleting, soaking, heat treatment, chaffing, alkali treatment)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
14. Feedstuffs storage methods to prevent feeds quality deterioration and loss	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5

V. LIVESTOCK FEEDING SYSTEMS

15. Fundamentals of animal diet formulation	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
16. Livestock feeding systems used in EU (e.g. DLG, INRA, NRC)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
17. Ecology animal nutrition systems	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
18. Feeding and nutrition of dairy cattle	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5

19. Feeding and nutrition of beef cattle	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
20. Feeding and nutrition of small ruminants (sheep, goat)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
21. Feeding and nutrition of pigs	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
22. Feeding and nutrition of poultry	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
23. Feeding and nutrition of horses	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
24. Feeding and nutrition of rabbits	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
25. Feeding and nutrition of other animals (what species)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
26. Feeding and nutrition of other animals (what species)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5

VI. LIVESTOCK HEALTH, WELFARE AND QUALITY OF ANIMAL ORIGIN PRODUCTS

27. Livestock metabolic disorders (<i>e.g. causes and nutritional method of prophylactic</i>)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
28. Toxicities in livestock animals (<i>e.g. mineral toxicities, poisonous plants, mycotoxins, feed and environmental contaminants</i>)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
29. Antinutritional substances in feeds and their effects on livestock (<i>e.g. phytates, beta-glucans, saponins, solanine</i>)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
30. Welfare of livestock (<i>e.g. feeding passage, feeding table, drinkers</i>)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
31. Animal nutrition as the main factor affecting animal	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5



origin products quality

VII. LIVESTOCK MANAGEMENT AND ENVIRONMENT

32. Economic aspects of livestock nutrition in rural Europe (<i>cost management</i>)	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
33. Feed calculation in advance - a schedule of feedstuffs requirement for all livestock in farm within a year	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
34. Effects of climate on livestock physiology and productivity	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
35. European environmental good practice and livestock nutrition	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
36. National and European feed laws for livestock	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Y/N <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5

Thank you for participating in the survey.

The filled questionnaire should be sent, by email or by fax, to

Name and Surname:

E-mail :

Fax no:

