



KNOWLEDGE OF AGRO - ECOLOGY AND TRADITIONAL FARMING METHODS AMONG STUDENTS OF BIOTECHNICAL CENTRE NAKLO

Report

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Introduction

During centuries of coexistence with nature farmers accumulated many skills that were used for managing the farm and environment. They adjusted in the way that they produced as much as possible in given conditions while respecting the local soil characteristics, climate, water and coexistence with its neighbors and nature. People have learned over the centuries to observe nature and adapt to it so that they got sufficient amount of quality food, feed and other products with its help. Intensive farming has pushed this knowledge to the periphery. Instead sustainability farming in many places is dominated by profit.

Nevertheless, throughout the world there are knowledges and traditional approaches which still enable sustainable farming, which is sometimes a necessity, if farmers want to survive. And just by collecting and learning those skills in some places, especially in South America, local communities were enabled to reinvent traditional farming systems, adapted to the specificities of their environment.

The approach is called agroecology and introduces old traditional knowledge previously evaluated by experts and updated to use into management of agricultural areas

Agroecology does not exclude any approach in advance. It is a combination of different skills, adapted for use in local environments for the most a sustainable farming. Approaches do not exclude also sustainable-driven innovation or transfer of knowledge from another environment, where it appeared useful. Holders of this knowledge and its users are mostly small farmers, who are mostly excluded from " profit agriculture ".

In some places in Europe, particularly in France, local knowledge is long collected and they try to transfer them trough schools to provide them to young generations. In Slovenia, we are fortunate to have many skills preserved and that they are sometimes still practiced. And agroecological approach can help this knowledge to be evaluated, preserved and introduced into every day use.

Management systems adapted to the sustainable use of the cultural landscape are developing. Small farms and users gain importance in preserving the cultural landscape in its diversity at the same time. Agroecological approach provides an opportunity for collecting traditional knowledge and their transmission by formal or informal way. Since the transfer of knowledge from generation to generation through personal contact often has been interrupted, this may play a role in a variety of educational and consulting institutions, which will ensure that the enriched agroecological knowledge passes on to the young masters. These will also give rural areas a chance of survival and less dependence from large corporations (Project Sagiter, www.kgzs.si, 2014)

The purpose of the report is to establish state of knowledge about Agroecology and agroecological approaches among students Biotechnical Centre and to determine whether there is interest among students to maintain for revival of traditional farming methods. We

interviewed students of three different educational programs including students of the fifth year of professional education. Surveys were carried out collectively by classes and the teacher was constantly present available to clarify any questions.

The sample of respondents

The sample of respondents consisted of 298 students of Biotechnical center Naklo and was evenly represented by gender (148 girls, 150 boys). Respondents were students of educational programs agro-entrepreneurial technician, nature conservation technician and professional biotechnical gymnasium. Different programs were relatively evenly represented in the sample (104 agro-entrepreneurial technicians, 101 nature conservation technicians and 93 grammar school students)

Most of the students come from rural settlements with fewer than 1,000 inhabitants (55%) and only 5% of students from settlements with more than 5,000 inhabitants. 4% of the surveyed students didn't define the size of the settlement they live in.

Fig.1: The size of place of residence

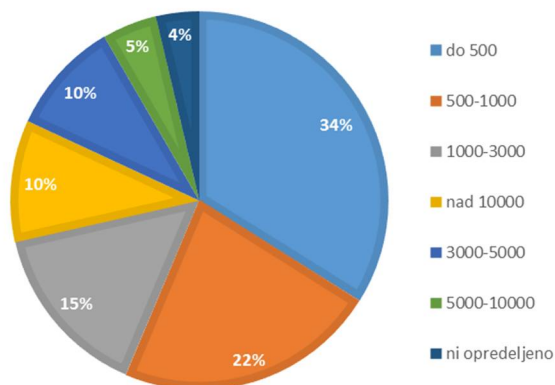
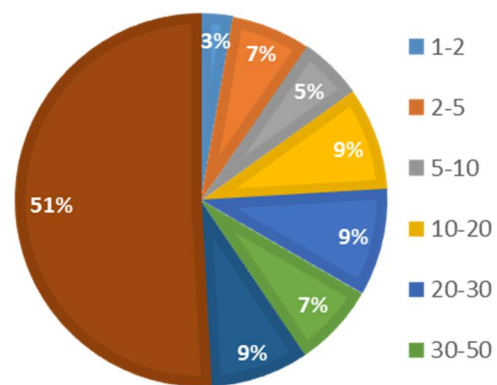


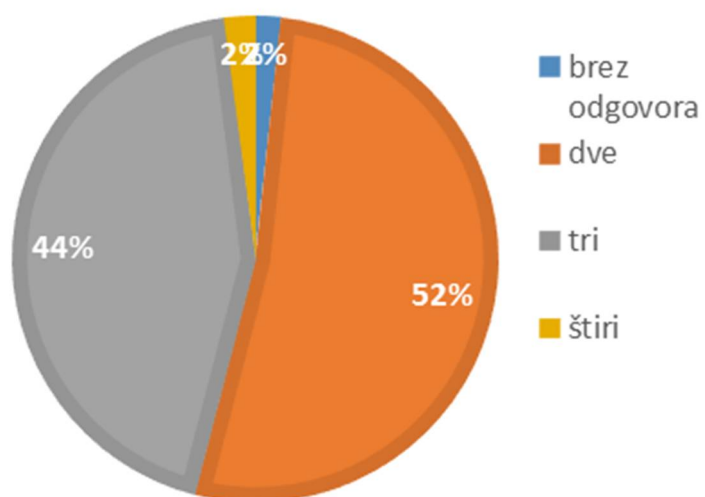
Fig.2: The size of the farm



Slightly less than 50% of respondents come from farms, of which 25 students (9%) come from farms larger than 50 hectares. Most of the students come from farms larger than 10 hectares. As farm size was defined the area of farmland including forests.

Majority of the respondents live in a household with two generations (parents and children), 44% live in households with grandparents, 2% live in a household with four generations (grandparents, parents, children, children's children). On average 4.58 persons are living in the same household.

Fig.1: Number of generations in the same household



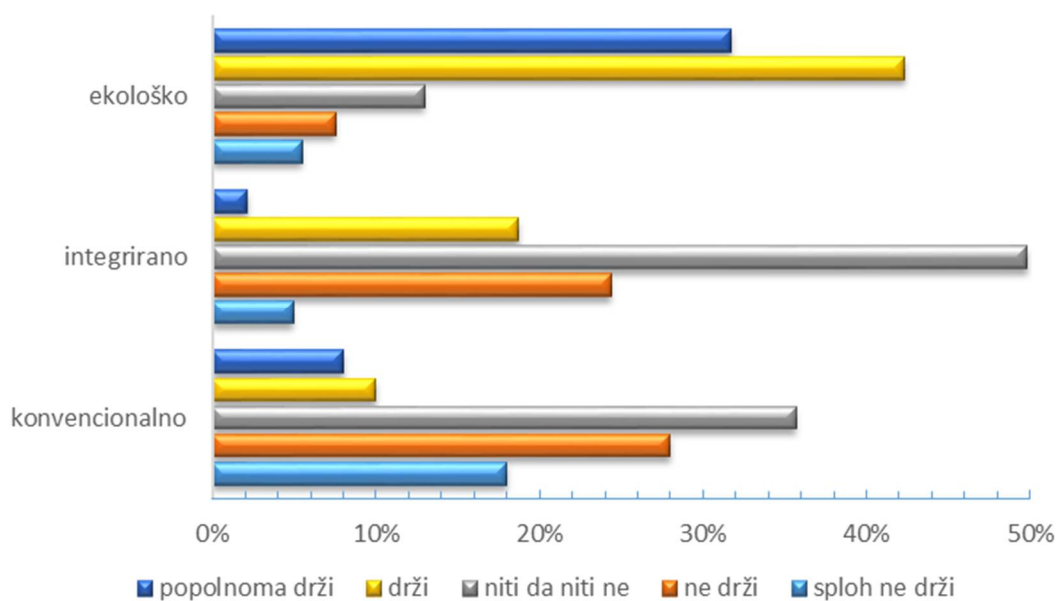
RESULTS

Traditional knowledges

Students were asked if they know the term agroecology and in 28% responded positively, but only 11% of them correctly explained the meaning of the term. Maximal understanding was observed among students of agro-entrepreneurial technician program, where 16 students (15%), were able to explain the term. 10 grammar school students (10%) and 8 pupils of natuel conservation technician program (9%).

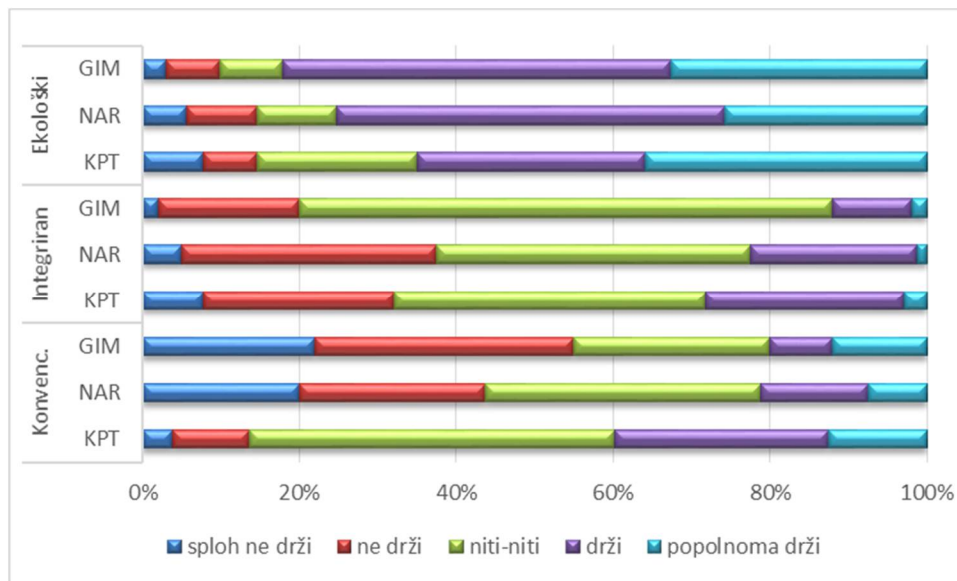
41% of students were able to identify agricultural approaches which are reducing pressure on the environment and provide a more sustainable agriculture.

Fig. 2: Influence of farming approach on the environment



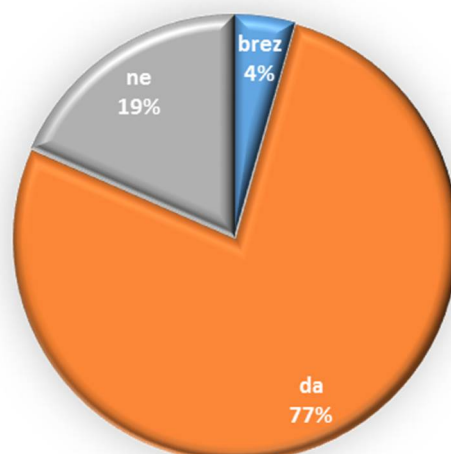
Majority of respondents agree that organic farming has smaller impact to environment (74 %), 13% are convinced that organic farming has negative impact to environment and 13% didn't answer this question.

Fig.3: Influence of farming approach on the environment – by educational programs



Most undecided about the impact of agriculture on the environment and climate changes were students about integrated agriculture where opinions were quite divided. It is interesting that a larger number of students believe that conventional agriculture is harmless to the environment, as determined by an integrated, this opinion is particularly widespread precisely in the Agri - entrepreneurial technician program where students mostly come from farms and we would expect a greater understanding of key concepts. We can, however, predict that such an opinion stems from »defending« their own way of farming at home.

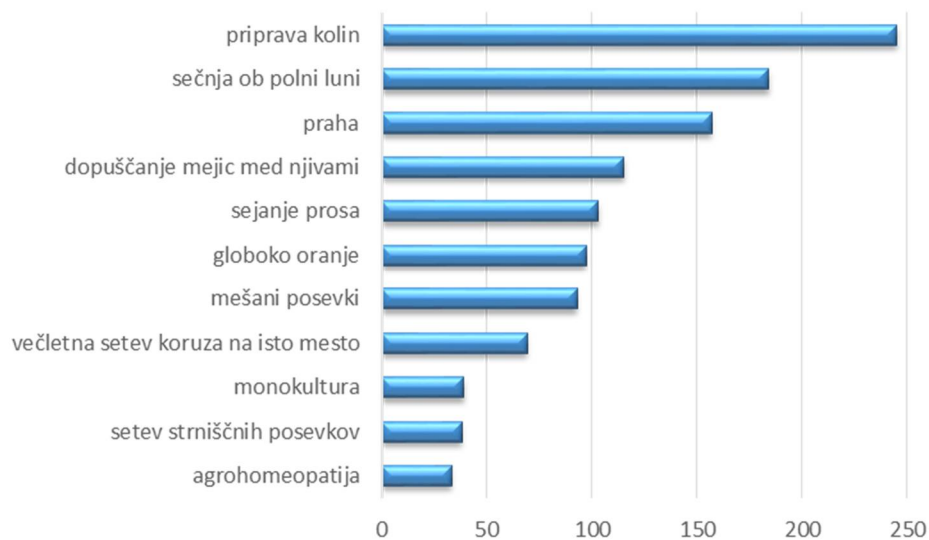
Fig.4: Knowledge about the needs of plants and animals and about landscape



Students were in the 77% of the opinion that farmers had to be more familiar with the needs of plants, animals and the characteristics of the environment in the past. Justification of the answer was reasonable in 67%. Students attributed better understanding of the needs of

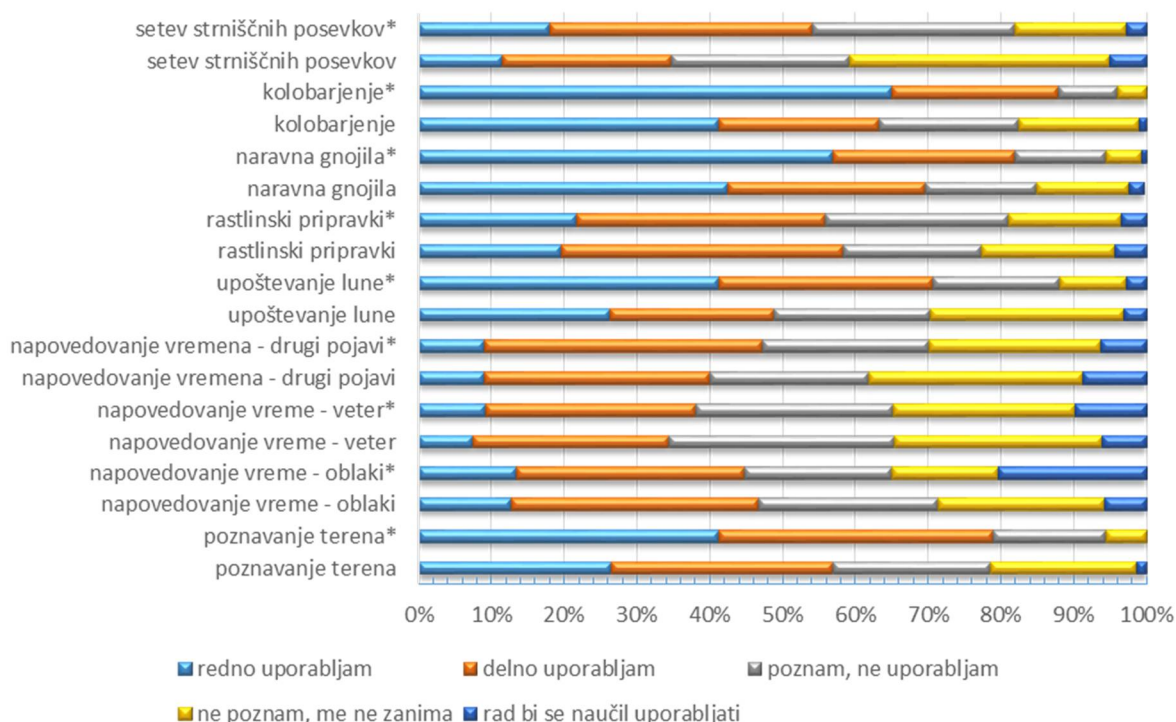
plants and animals and the characteristics of the environment in the past to greater need for coherence with the nature and more precise observation of nature. On the other hand they are convinced that because of the research and a numerous data, information from advisory services and general increased availability of the knowledge and information nowadays we know more about the needs of plants and animals. By the positive answer, 72% respondents had reasonable interpretations. In the case of a negative answer 56% explanations were meaningful.

Fig.7: Recognition of traditional (agroecological) knowledges



On the question of traditional agroecological practices and knowledge, students largely recognized as traditional: the preparation of pork and sausages in winter, wood harvest at the full moon and set aside. The least agroecological or traditional they recognized maize production on the same place for more years and monoculture. Interesting is that sowing stubble crops and agrohomeopathy are found at the bottom of identified traditional methods. Such answers are attributed to low understanding of terms such as agrohomeopathy, stubble crops, etc..

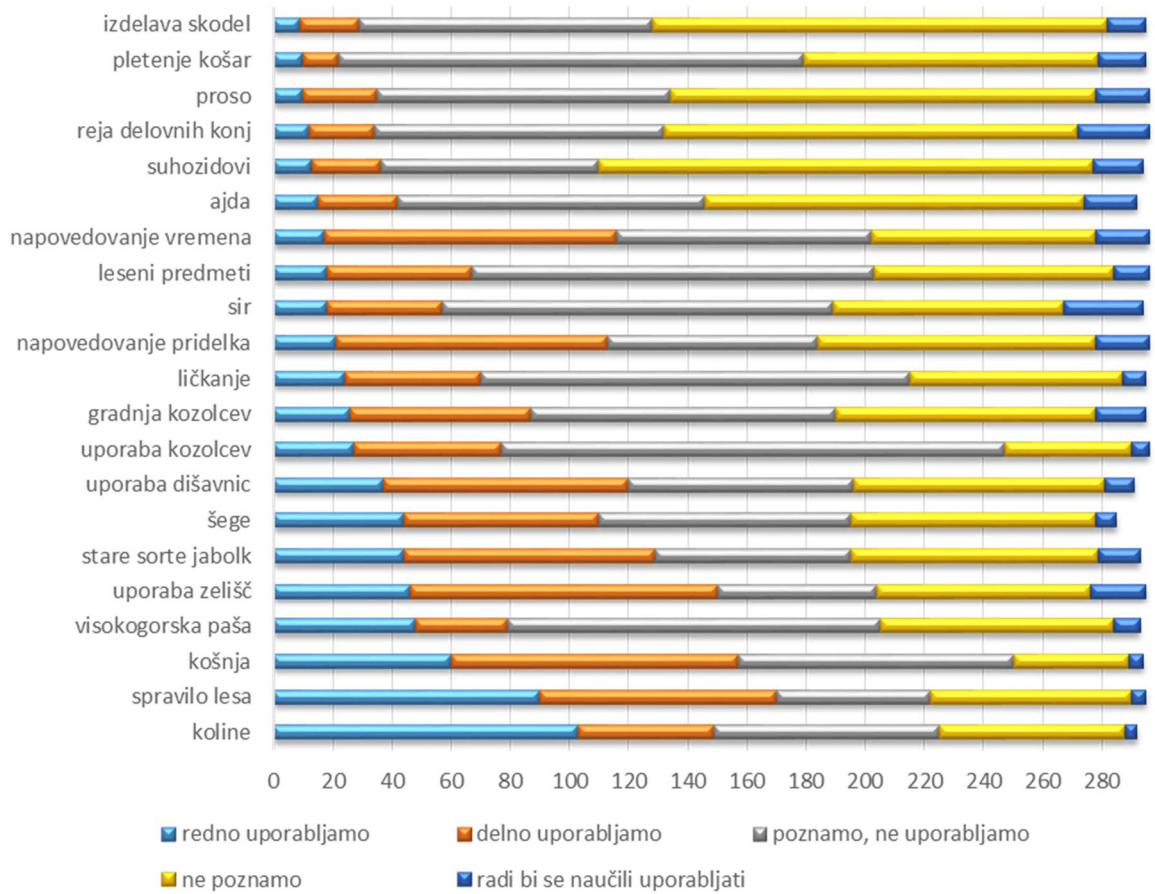
Fig 5: Farming knowledges maintained respondents' families



ASsdterisk [*] indicates the answers of repondents from farms

From the general farm knowledge the students indicated that they are largely familiar with and use crop rotation and natural fertilizing. A large proportion orient themselves on the phases of the moon in sowing, harvest, logging and slaughter, especially students who come from farms, because the moon at least partially taken into account as much as 70%. More than 50% of the students claim that the family has knowledge about the characteristics of the terrain and at least partly plan interventions in space according to that, which is especially pronounced in respondents coming from farms. The use of herbal preparations is also practiced, but for the most part by students who are not from farms. Sowing stubble crops is partly used by more than 50% of the students that come from farms. To a lesser extent, students rely on traditional knowledge in predicting the weather from wind direction, regardless of clouds and other natural phenomena. This can be attributed to the lack of need (weather forecast), but the students, especially those from the farm expressed a desire for this knowledge. Otherwise, the weather information is regularly recorded and monitored in 11% of families, students, and 17% when the students come from farms. Occasional weather records is kept by 24% of students, 30% when they come from farms, Weather phenomena are not followed by a 65% of all students and 53% of those coming from farms.

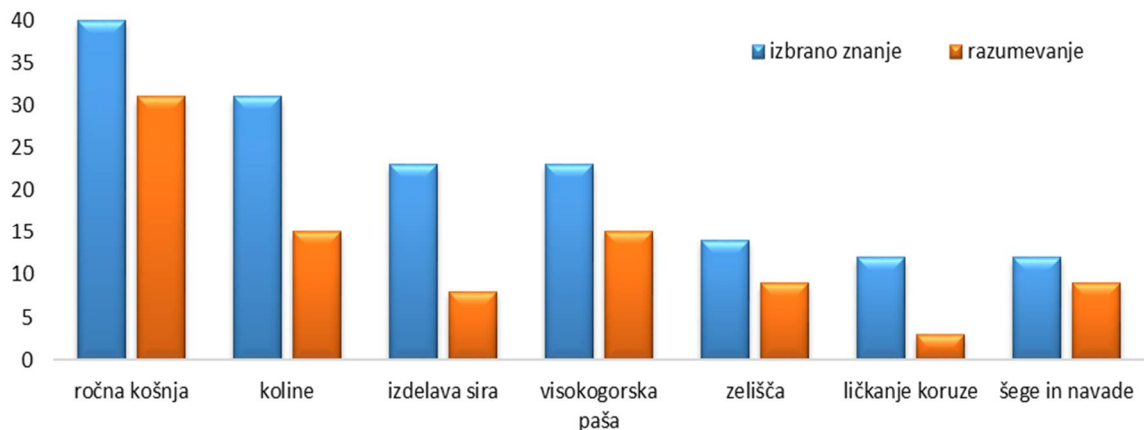
Fig. 6: Traditional knowledges in respondents families



From the data collected on traditional skills in the family, we can conclude that most common knowledge is about slaughter products. About half of the families practice the preparation of slaughter products or at least partially. More than 50% of respondents perform for woodharvets and manual grass cutting, at least partly they use herbs. Slightly less than 15% of the students claim that they practice pasturing on high pastures. All these results are closely linked to natural conditions on the farm (the presence of forest, mountains ...). The least is the knowledge about drywall construction, shingle making, knitting baskets, production and use of millet and horse breeding business. Low is also the knowledge about cheese making, production of buckwheat (less than 20% of them possess this knowledge in the family). Students have shown the greatest interest in knowledge of cheesemaking, farming work horses (over 10%), 18 students (6%) would like to obtain knowledges about cultivation and use of buckwheat and millet, prediction of the weather, building a drywall or hay-racks and basket weaving (5%). On the question of how do selected traditional practices affect greater sustainability of farming, the students most frequently identified hand grass cutting, which are to a large extent be able to explain the significance for the sustainability of agriculture. They are often also opt for pork, where they have been less successful in the interpretation thereof. Relatively good understanding of the students also showed the

impact of the high pastures, herbalism and other customs and traditions to the sustainability of agriculture.

Fig. 7: Traditional methods contributing to sustainability of farming



Asked whether agrohomeopathy is an agroecological method 119 (53%) students answered affirmative, but only 35 students could explain their answer meaningful. 103 students (47%) responded negatively, but his reply was successfully justified only by 8 respondents. It is also interesting that the students in question, where they have to choose and encircle agroecological methods of a set of ten practices selected agrohomeopathy only 33 times, but this time they have chosen it 119 times.

Proverbs and wisdom

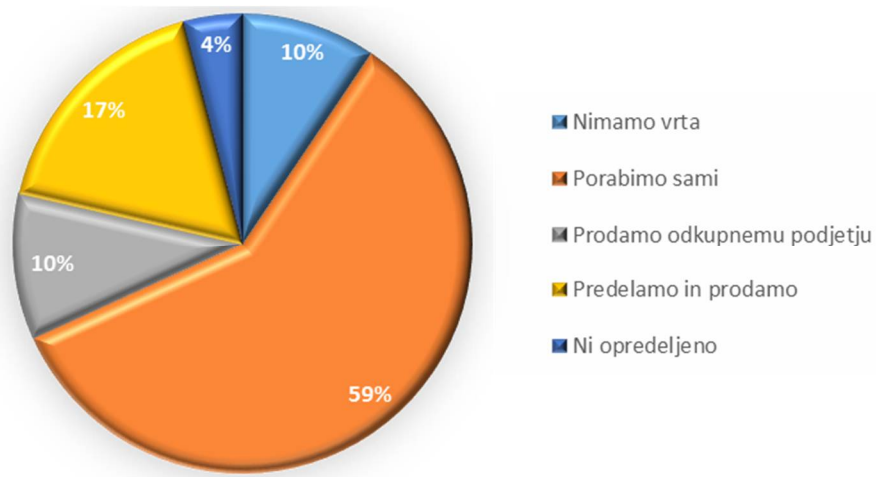
Old Slovenian proverb says: »At St. Agnes day hens begin to lay« which refers to the lengthening of the day and related to start of laying. Students were asked whether it is still valid today, and if they can explain their argument. Students have largely decided that today it is not the case anymore and justified it with artificial lighting in battery cages for laying hens. Some of the students argued that this still holds true today, especially in organic and free-range laying hens. Students have made meaningful responses in 32%.

The students were motivated to remember a proverb or wisdom which describes traditional agricultural practices, for example. when to mow, harvest, chop wood, etc. and explain their importance. 35% of the students recorded saying and 80% of those knew to explain its meaning. Students frequently mentioned proverb »St. Martin makes wines of must«, »St. Valentin holds the key to the roots«, and even : »Sour St. Medards day until the end of the month no sunny day«. 43% of the students regard traditional proverbs and wisdoms at home.

Self-subsistence

55% of the respondents indicated that they, their parents or grandparents retain their own seeds of vegetables and cereals at home. Most of produced vegetables is consumed themselves (59%), 17% of them sell their crops processed, 10% of the students sell their crops to agrifood company or retailer store. 10% of respondents don't own their gardens and 4% didn't answer the question. Those who sell their products, they sell mostly to regular customers (57%) on farm or farmers market. 71% of respondents could define benefits of Local Food Chain.

Fig.8: Use of home grown products



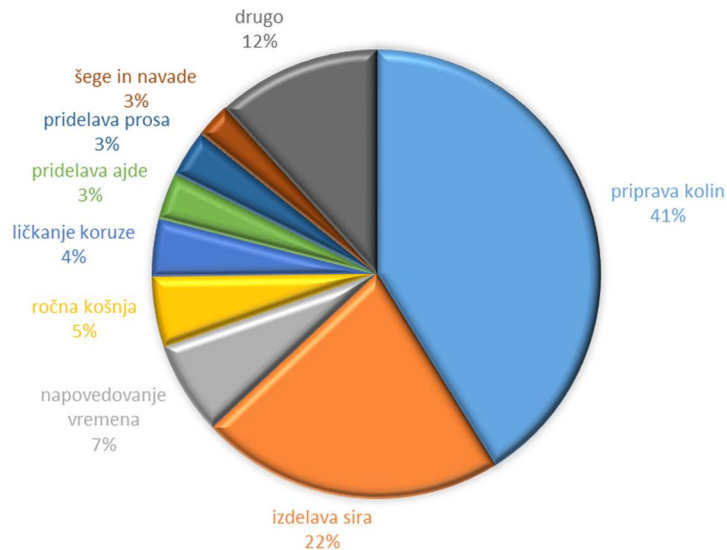
Preserving of knowledges

122 students have indicated that they would like to get knowledges for the implementation of agroecological sustainable traditional rural skills. Most of them would like to get knowledge from the (great)parents (120) and through practical training (74). 66 students would like to gain knowledge from experts and through the school programs.

Students were primarily interested in knowledge in the preparation of pork and sausages and cheese making. Eight pupils (7%) would like to gain knowledge to predict the weather from natural phenomena, 6 of them are interested in manual hay mowing. Students are interested in the husking corn, buckwheat and millet cultivation, old customs and traditions. They also mentioned a desire to control the high mountain pastures, education work horse construction hayracks, tasks related to harvesting timber and knowledge about the use of herbs and knowledge of old apple varieties. From the options that are not encountered in

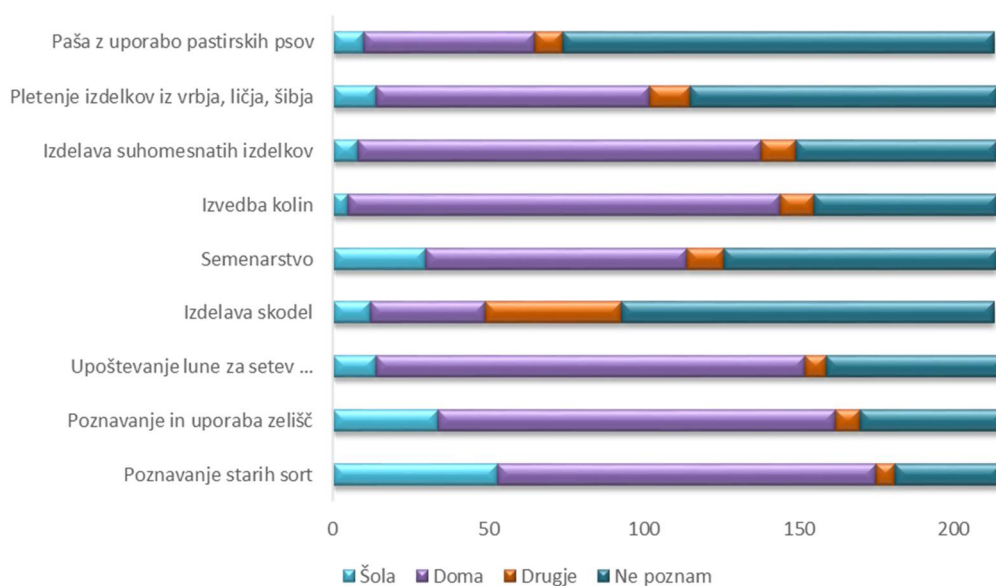
the questionnaire two student also stated that they would like to learn to produce small objects made of wood.

Fig. 9: Traditional (agroecological) knowledges respondents would like to obtain



Students who come from farms further question was set, namely about where they were acquainted with traditional knowledge. Most have obtained it at home, partly in school, especially in the field of seed production, knowledge of old varieties and herbs. Part of the students have acquired knowledge elsewhere probably on farms of relatives and friends), 44 students (21%) has already known the shingle making, but outside the school or home environment. Shingle making and pasturing with the use of sheepdogs were at least known to respondents.

Fig. 10: Where did respondents get traditional knowledge



CONCLUSIONS

Agroecology as the term is relatively unknown in the Slovenian area, both among students as well as among experts in the field of agriculture. Due to the nature concoction of agronomy - the science of agriculture and ecology - the science of relations between the animate and inanimate nature, namely, the word sounds "familiar" and by so students recognized it, but they didn't get the very meaning of it.

Students not familiar with traditional or agro-ecological farming methods. The knowledge and their use is more pronounced in students originating from farms. Especially those traditional methods, which are today still widespread in practice, such as wood harvesting, preparing pork meat, crop rotation and knowledge about the terrain.

The families of the students still maintain knowledge of weather forecasting from the clouds, wind, and other phenomena, although this knowledge be used to a lesser extent. This can be attributed to relatively accurate and always / everywhere available weather forecasts - but nevertheless, these skills are still highly desirable (microclimate). The families of students often consider moon influence by wood harvesting and slaughter.

Students are aware that farmers were more connected to nature in the past, because they did not have available information and they needed to rely on the characteristics of their environment and ancient knowledge. To a lesser extent, this need is identified by them today.

Interest in acquiring/maintaining traditional or agroecological knowledges is otherwise expressed among the students. They would like to get this knowledge would like gain at home from (old) parents or on practical training, the less they believe that they can get this knowledge in school or by other experts in the field. They are specially intersted in knowledges about slauhter products preparation,cheesemaking and weather forecasting.

Result of this work show that in Slovenia traditional (agroecolglcal) knowledges still exist, they are still transfered traditionally in the family and young people show interest to get them and mainain them. The school doesn't teach holistic approach of explaining sustainability of the farming and about incorporation of traditional knowledge into everydays work on farm.

Preference of nonformal transfer of agroecological knowledges is an opportunity to use different methods of knowledge transfer to different target groups. Andragogycal approaches have to prevail and make transfer more accessible to different audiences. Of big help can be approaches and methods set in the frame of project Sagiter.

**Translated, edited and commented by dr. Janko Rode – CAFS, Ljubljana, Slovenia

PRILOGA I

ANKETNI VPRAŠALNIK

Pozdravljen,

V projektu Sagiter nas zanima poznavanje tradicionalnih kmetijskih praks, ki so še posebej pomembne za sonaravno kmetovanje.

Reši anketo in prispevaj delček o ohranitvi teh znanj.

1. Splošni podatki (obkroži)

a. Spol: 1. moški 2. ženski	b. Šola Srednja 1 2 3 4 5 Višja 1 2	c. Stopnja izobraževanja 1. triletno izobraževanje 2. štiriletno izobraževanje 3. 3+2 4. VSŠ
d. Usmeritev v izobraževanju 1. kmetijstvo 2. hortikultura 3. živilstvo 4. naravovarstvo 5. strokovna gimnazija	e. Kraj bivanja 1. do 500 prebivalcev 2. 500 – 1000 3. 1000 – 3000 4. 3000 – 5000 5. 5000 – 10.000 6. nad 10 000 prebivalcev	f. Velikost kmetije (z gozdovi) v ha 1. 1-2 2. 3-5 3. 6-10 4. 11-20 5. 21-30 6. 31 -50 7. nad 50 8. nimamo kmetije
g. Število oseb v gospodinjstvu a. do 3 b. 4 c. 5 d. 6 e. 7 ali več	h. Število generacij v gospodinjstvu a. dve (otroci, starši) b. tri (otroci, starši, stari starši) c. štiri (otroci s svojimi otroki, starši in stari starši)	i. Koliko oseb živi pod eno streho? a. do 3 b. 4 c. 5 d. 6 e. nad 7
j. Moja pričakovanja od šole 1. so izpolnjena 2. delno izpolnjena 3. niso izpolnjena	k. Kaj bi ti zboljšal na šoli (izpolni eno najpomembnejšo!) 1. več interesnih dejavnosti 2. bolj strokovno teoretično znanje 3. prakso	l. Delo v prihodnosti (izražena moja želja) 1. delal bi v domačem, podjetju/ kmetiji 2. delal bi kot samostojni podjetnik 3. delal bi kot raziskovalec/ strokovnjak 4. delal bi kot svetovalec/ učitelj 5. v prihodnosti ne vidim priložnosti v svoji stroki
m. Izobraževanje/študij bom nadaljeval/ se zaposlil 1. na štiriletni šoli 2. višji strokovni šoli 3. visoki šoli (tudi univerzitetni študij) 4. se samozaposlil (s.p., ...) 5. se zaposlil v stroki 6. se zaposlil kjerkoli	n. Za ponovni vpis v BC Naklo bi se odločil 1. še enkrat 2. bi še premislil 3. ne bi se ponovno vpisal	o. Za vpis na BC Naklo je vplivalo največ (izpolni eno najpomembnejšo!) 1. priporočilo staršev/sorodnikov/znancev 2. priporočilo prijateljev 3. priporočilo osnovne šole 4. različni mediji (radio, časopisi, ...) 5. internetna stran 6. odločen sem bil že prej

2. Ali si že slišal za izraz **AGROEKOLOGIJA**? DA NE

Kaj ta izraz pomeni? _____

3. Ali poznaš kmetijske pristope, ki s svojimi praksami zmanjšujejo pritisk na okolje in omogočajo bolj sonaravno kmetovanje?

4. Ali si že slišal za izraz **AGROHOMEOPATIJO** DA NE

Kaj ta izraz pomeni? _____

5. Vpliv kmetijstva na obremenjevanje okolja

Trditve	1-sploh ne drži	2-ne drži	3-niti ne drži, niti drži	4-drži	5-popolnoma drži
Konvencionalno kmetijstvo obremenjuje okolje in vpliva na podnebne spremembe					
Integrirano kmetijstvo ne obremenjuje okolja in ne vpliva na podnebne razmere					
Ekološko kmetijstvo ne obremenjuje okolja in ne vpliva na podnebne razmere					



Agroekološka znanja so tradicionalna znanja, ki so se uporabljala v kmetijstvu in so jih uporabljali naši predniki ...

6. Kmetje so morali včasih bolj poznati potrebe rastlin, živali ter značilnosti okolja, v katerem so kmetovali? Obkroži in razloži svoj odgovor.

DA

NE

Obrazložitev:

7. Obkroži tradicionalne (agroekološke) prakse/znanja:

priprava kolin pozimi		praha
globoko oranje	mešani posevki	agrohomeopatija
setev strniščnih dosevkov	dopuščanje mejic med njivami	večletna setev koruze na isto mesto
monokultura	sečnja ob polni luni	sejanje prosa

8. Splošna znanja za kmetovanje, ki jih imamo v naši družini

Splošna znanja za kmetovanje	Redno uporabljamo	Delno uporabljamo	Poznamo, vendar ne uporabljamo	Ne poznamo, nas ne zanima	Radi bi se naučili uporabljati
Poznavanje terena za posege v prostor (npr. izbor kultur na podlagi vlage, sestave, naklona tal...)					
Napovedovanje vremena na podlagi oblakov					
Napovedovanje vremena glede na smer vetra					
Poznavanje drugih naravnih pojavov za ugotavljanje vremena					
Upoštevanje lune za setev in spravilo pridelkov in izdelavo izdelkov, sečnjo lesa in zakol					
Izdelava različnih pripravkov iz rastlin					
Uporaba naravnih gnojil					
Kolobarjenje					
Setev strniščnih posevkov					

9. Ali v družini dnevno spremljate in zapisujete podatke o vremenu (temperatura, padavine itd.)

DA

NE

VČASIH

10. Tradicionalna znanja za ki jih imamo v naši družini

Tradicionalna znanja na podeželju	Redno uporabljamo	Delno uporabljamo	Poznamo, vendar ne uporabljamo	Ne poznamo, nas ne zanima	Radi bi se naučili uporabljati
Priprava kolin					
Izdelava sira					
Ličkanje koruze					
Ročna košnja					
Nalaganje sena v kozolec					
Pletenje košar in drugih predmetov					
Izdelava drobnih predmetov iz lesa					
Znanja povezana z napovedovanjem vremena					
Visokogorska paša					
Znanja za vzgojo delovnih konj					
Znanja povezana z napovedovanjem pridelka					
Gradnja kozolcev in lesenih stavb					
Opravila povezana s spravlom lesa					
Izdelava skodel (šinklov)					
Znanje o uporabi zdravilnih zelišč					
Uporaba dišavnic					
Poznavanje starih sort jabolk					
Gradnja suhozidov					
Znanje o pridelavi ajde					
Znanje o pridelavi in uporabi prosa					
Razne šege in navade (naštej spodaj)					

11. Izberi si eno od prej naštetih tradicionalnih praks in obrazloži, kako prispeva k večji sonaravnosti kmetovanja.

12. Včasih so rekli: »Sv. Neža (21.1.) kuram rit odveže« - nesnost je namreč povezano z osvetlitvijo. Ali to velja tudi v današnjem času? Razloži.

13. Navedi pregovor/modrost, ki opisuje tradicionalne kmetijske prakse npr. kdaj sejati, kositi, žeti, sekati ..., sejanje/sajenje določene kultur na določena mesta, način /čas priprave ozimnice/krme za zimo?

Obrazloži njegov pomen.

14. Ali se doma/pri starih starših držite pregovorov/modrosti v zvezi s kmetijstvom

DA NE

15. Ali vaši starši (stari starši) ohranjajo lastno seme zelenjave in žit?

DA NE

16. Ali menite, da lahko agrohhomeopatijo uvrščamo med agroekološke metode?

DA NE

Obrazložite.

Agrohhomeopatija uporablja osnove homeopatskega zdravljenja za zaščito in krepitev rastlin. Pripravki so zelo razredčeni.

17. Kaj storite domačimi pridelki in prirejenimi živalmi?

- a. nimamo vrta/kmetije
- a. porabimo sami
- b. prodamo odkupnemu podjetju (zadrugi)
- c. predelamo in prodamo

V kolikor svoje pridelke/izdelke prodate: Ali imate stalne stranke?

DA NE

18. Navedite prednosti lokalne preskrbne verige?

19. Ali bi rad spoznal in se usposobil za izvajanje trajnostno naravnanih tradicionalnih podeželskih znanj?

DA NE

Navedi način, kako bi želel pridobiti to znanje (možnih več odgovorov):

- a. od (starih)staršev,
- b. z učenjem in predavanji v šoli,
- c. od strokovnjaka na tem področju,
- d. praktično izobraževanje (delo).

Navedi katere?

Izpolnijo le tisti, ki imajo doma kmetije.

21. Od spodaj naštetih metod tradicionalnega kmetijstva navedi tiste, s katerimi si se seznanil v šoli in tiste, ki si jih pridobil med delom na kmetiji/vrtu?

Tradicionalna znanja	Šola	Doma	Drugje: (navedi)	Ne poznam
Poznavanje starih sort kmetijskih rastlin				
Poznavanje in uporaba zelišč				
Upoštevanje lune za setev in spravilo pridelkov in izdelavo izdelkov, sečnjo lesa in zakol				
Izdelava skodel				
Semenarjenje				
Izvedba kolin				
Izdelava tradicionalnih suhomesnatih izdelkov				
Pletenje predmetov iz vrbja, ličja, šibja				
Paša z uporabo pastirskih psov				
Drugo (vpiši)				

Hvala za sodelovanje v anketi o poznavanju in uporabi tradicionalnih kmetijskih znanj, ki jih imenujemo tudi agroekološka znanja in predstavljajo izhodišča za lokalno prilagojene sonaravne pristope trajnostnem kmetovanju.