DIGI-Rangeland

Digital Innovation Needs of Rangeland Farmers in Bulgaria

Yanka Kazakova-Mateva (UNWE/STEP, BG), Jóhannes Sveinbjörnsson (AUI, IS), Germain Tesnière (IDELE, FR), Vyara Stefanova (STEP, BG)

Sixth international scientific conference Innovative development of agricultural business and rural areas – IDARA
1-2 October 2026, Sofia, Bulgaria



Funded by the European Union

Project funded by

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Education, Research and Innovation SERI

This project has received funding from the European Union's Horizon Europe Research and Innovation programme under Grant Agreement No. 101183132 and from the Swiss State Secretariat for Education, Research and Innovation (SERI) Grant No. 24.00530. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Swiss State Secretariat for Education, Research and Innovation. Neither the European Union and Swiss State Secretariat for Education, Research and Innovation nor the granting authority can be held responsible for them.

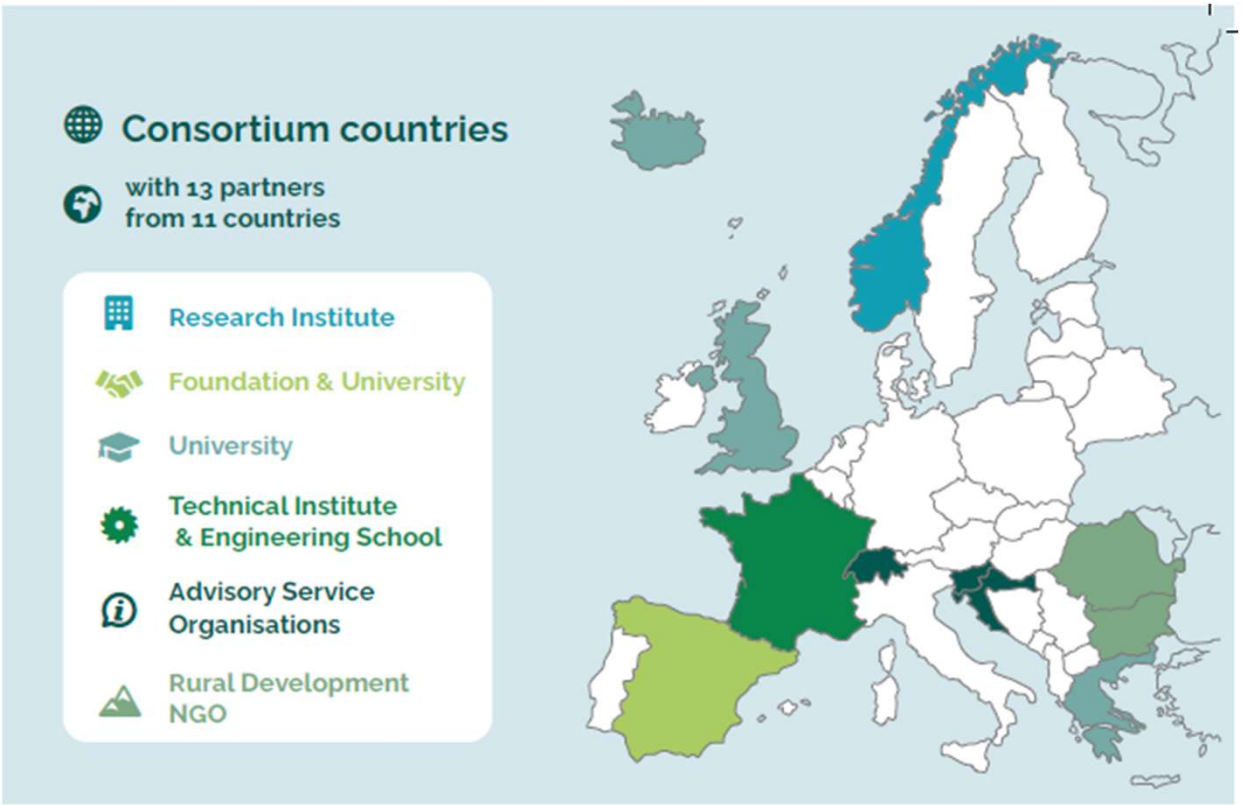
The project network

Network:
11 countries

Consortium:
13 participants

Sectors: **7**
Sheep, cattle, goats, buffalo, reindeer

Duration:
4 years (2025-2028)





DIGI-Rangeland : A European network

Objectives

Create a network of livestock farmers, land users and rural stakeholders from 11 European countries to share knowledge on Digital Technologies and Innovations (DTI) in rangeland areas

Foster cross-exchanges through multi-stakeholder workshops at national and international level, and through broad participation of stakeholders in the rangeland's territories

Improve knowledge levels on digital solutions through scaling activities, demonstrations, communication materials, and training for farmers, advisors, students and land users



Research Questions:

- In Europe, extensive livestock systems provide a variety of products and services, contribute to local economies and preserve landscapes.
- However, they face major challenges that threaten their viability: climate change, land use competition, predation… and even a lack of understanding of their farming practices by civil society.
- Digital tools can provide some solutions and support their sustainability.
- RQs:

  What are the challenges faced by rangeland farmers?

  What are their experiences with digital technologies and innovations (DTI)?

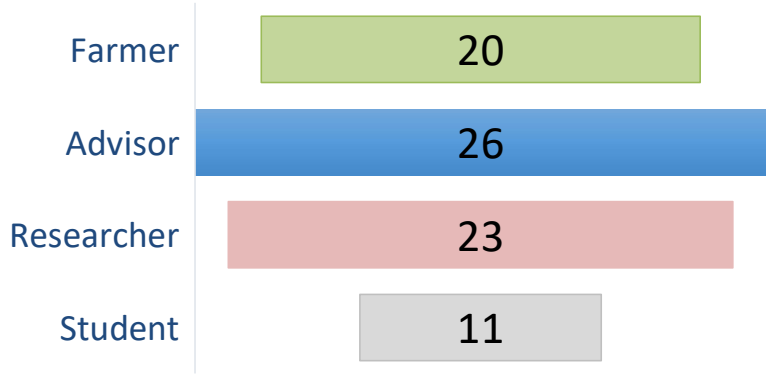
  What are their needs in terms of DTI?

  What are the barriers to adopting DTI?

DIGI-Rangeland

The survey: Semi-structured questionnaire
Period: Oct.2025- Jan.2026
Respondents: 80 (across Bulgaria)

Professional role of respondents (N=80)



Age of respondents

[18-30]	[31-45]	[46-59]	[60-75]
0	3	15	2
0	8	15	3
1	9	9	4
8	2	1	0
9	**22**	**40**	**9**

Gender of respondents

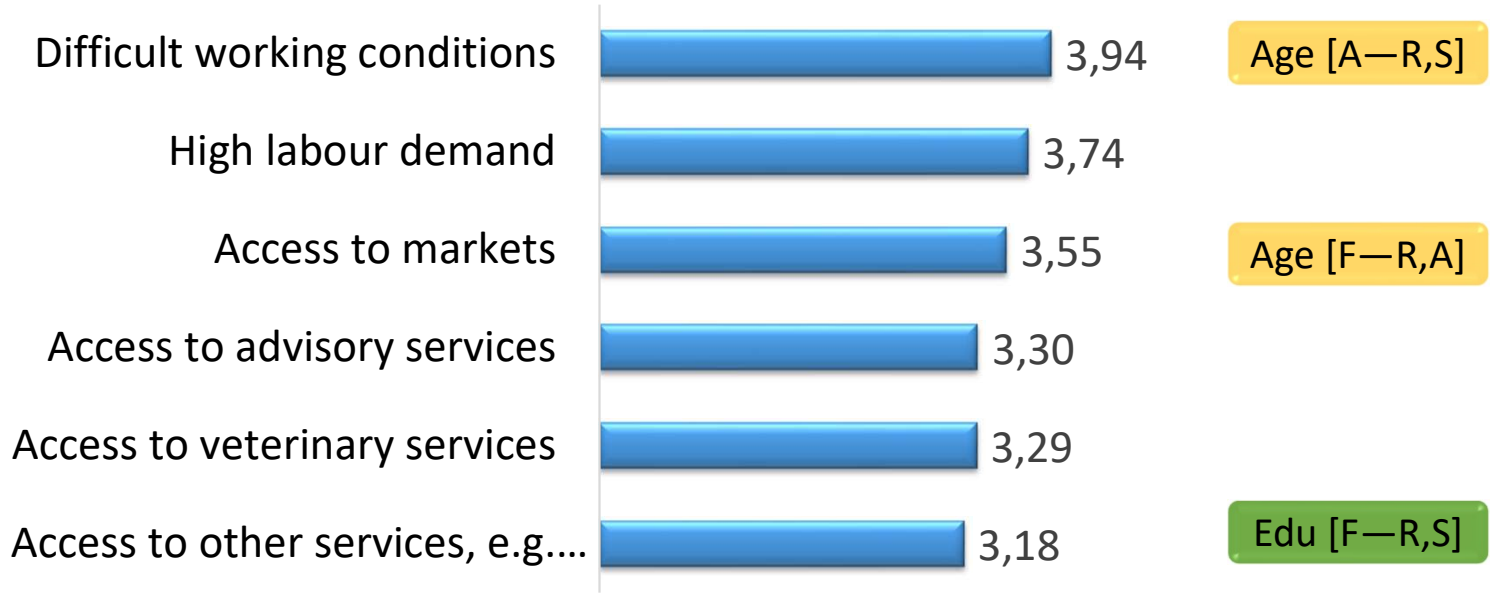
Female	Male
1	19
19	7
20	3
5	6
45	**35**

Education level

Secondary education	Vocational diploma	University Bachelor	University Master/PhD
5	2	5	8
0	0	4	22
0	0	0	23
3	3	0	5
8	**5**	**9**	**58**

DIGI-Rangeland

Challenges for rangeland farming (not DTI specific) [FO]



Age [A—R,S]

Age [F—R,A]

Edu [F—R,S]

{Independent-Samples Kruskal-Wallis test}

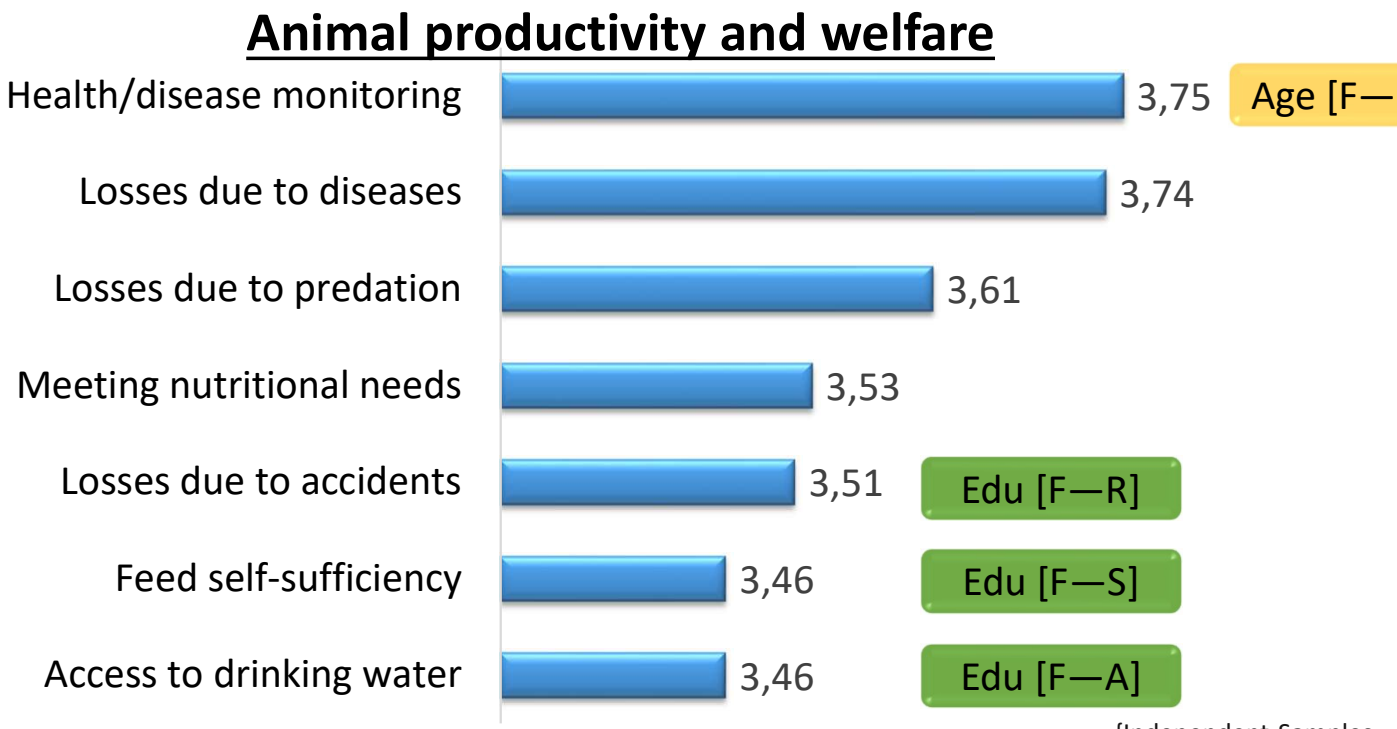
Likert-scale
1 = strongly disagree
2= disagree
3= neither/nor
4= agree
5 = strongly agree

DIGI-Rangeland

Note! These are preliminary results.

Challenges for rangeland farming (not DTI specific) [APW]

Likert-scale
1 = strongly disagree
2= disagree
3= neither/nor
4= agree
5 = strongly agree



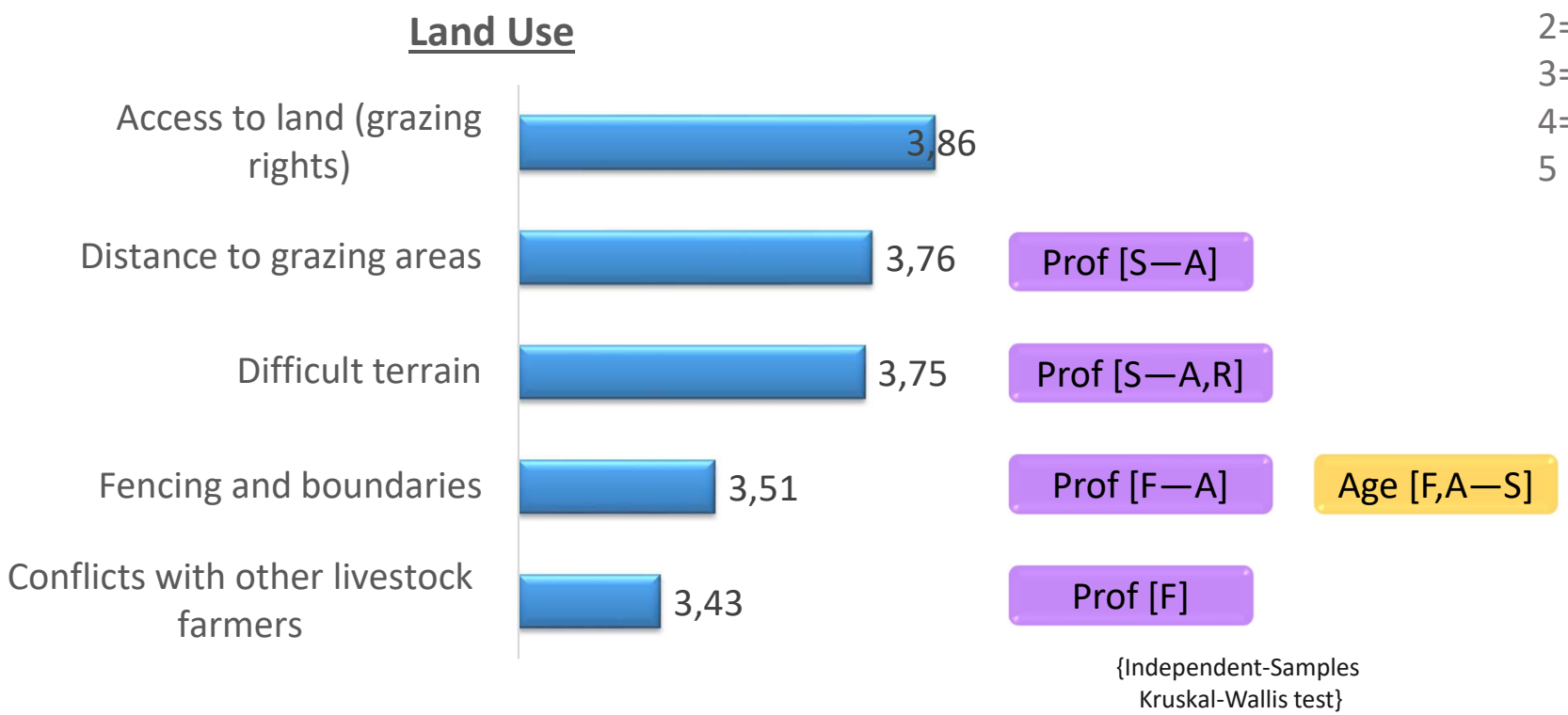
{Independent-Samples Kruskal-Wallis test}

DIGI-Rangeland

Note! These are preliminary results.

Challenges for rangeland farming (not DTI specific) [LU]

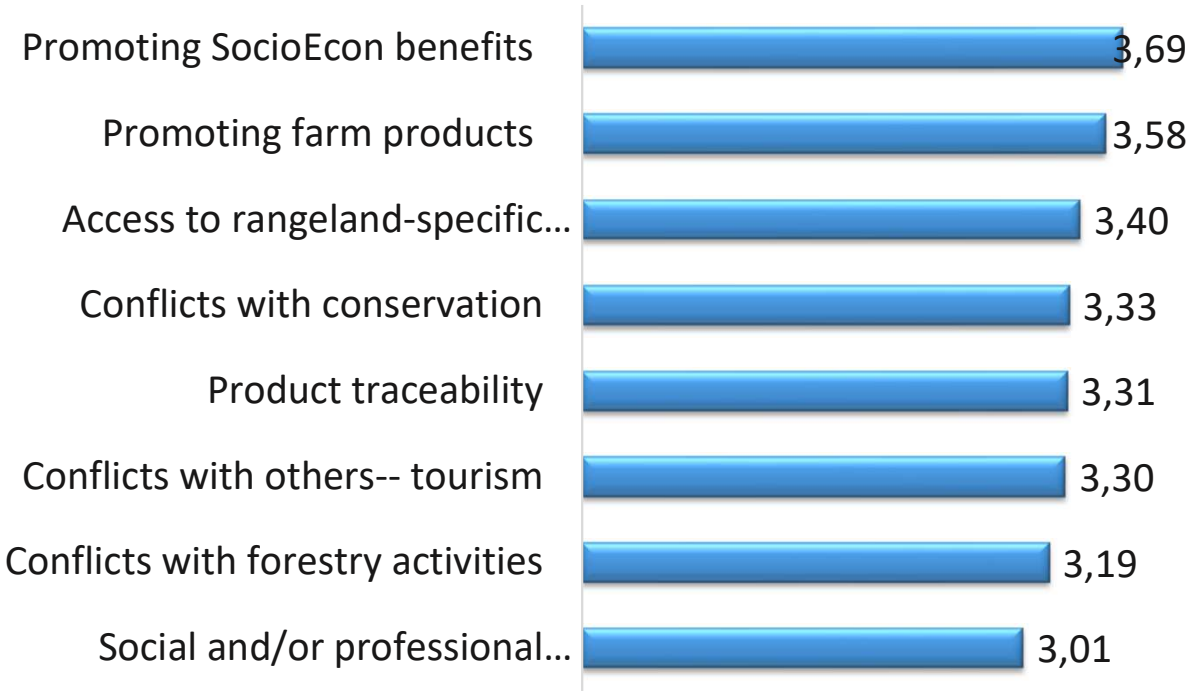
Likert-scale
1 = strongly disagree
2= disagree
3= neither/nor
4= agree
5 = strongly agree



DIGI-Rangeland

Note! These are preliminary results.

Challenges for rangeland farming (not DTI specific) [SC]



Likert-scale
1 = strongly disagree
2= disagree
3= neither/nor
4= agree
5 = strongly agree

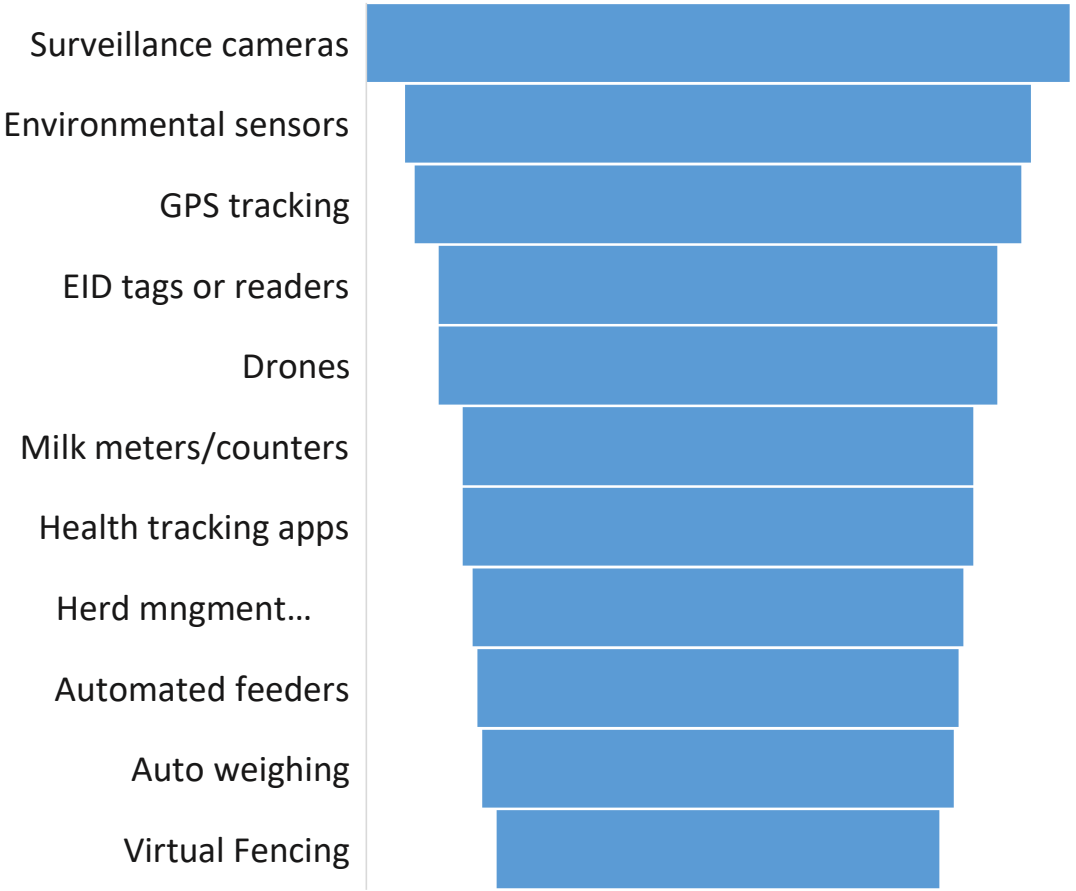
Edu	Prof [F]	Age [>65]
Edu		
Edu	Prof [F]	
Edu		

{Independent-Samples Kruskal-Wallis test}

DIGI-Rangeland

Note! These are preliminary results.

Current experience with DTI?



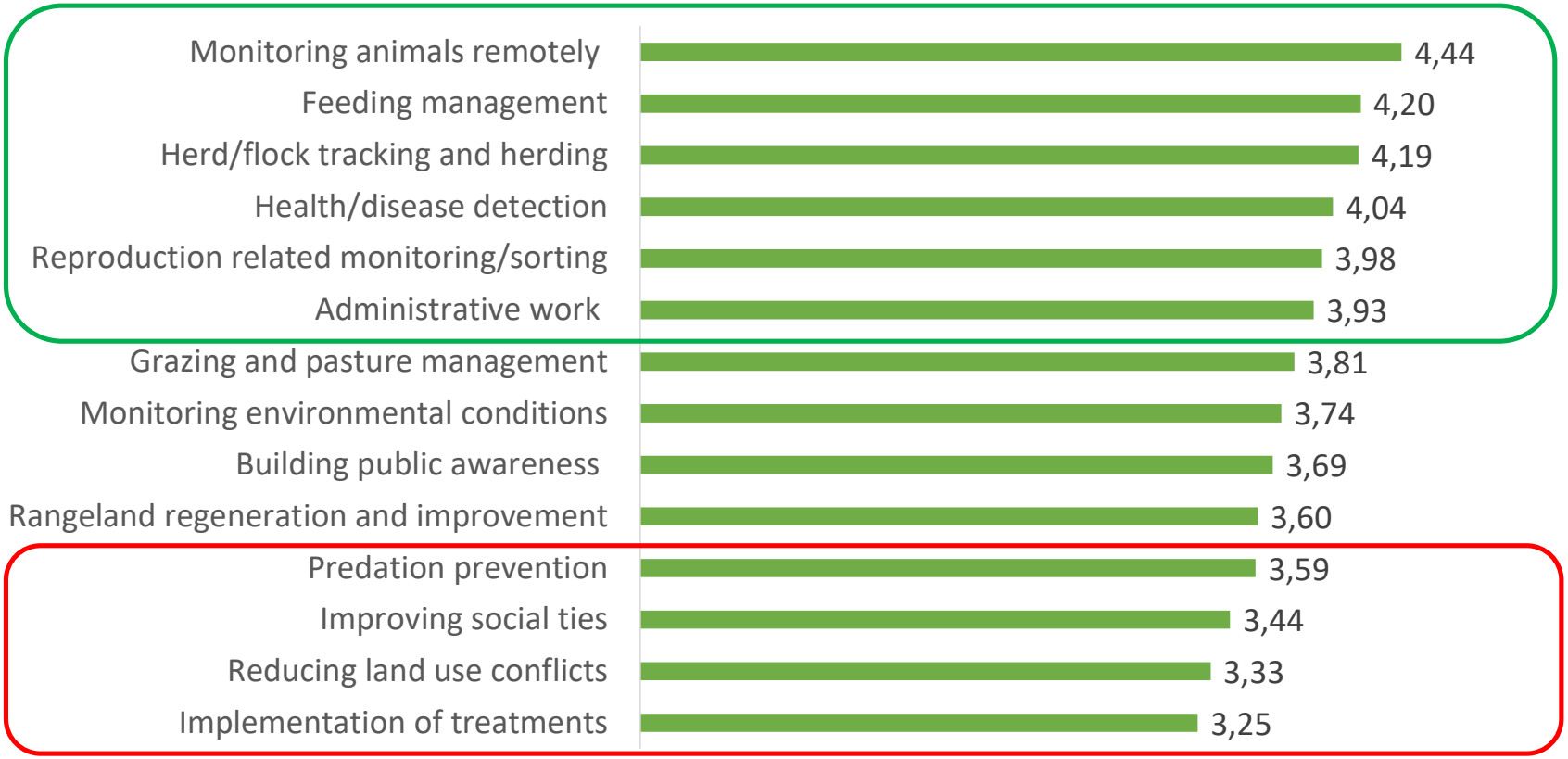
Use of DTI

	Not sure	No, never	Yes, in the past	Yes, occasionally	Yes, regularly
Farmer	3	10	0	2	5
Advisor	4	8	2	7	5
Researcher	3	8	0	6	6
Student	0	9	0	0	2
Total	**10**	**35**	**2**	**15**	**18**

DIGI-Rangeland

Note! These are preliminary results.

DTI could help with the following tasks related to rangeland farming

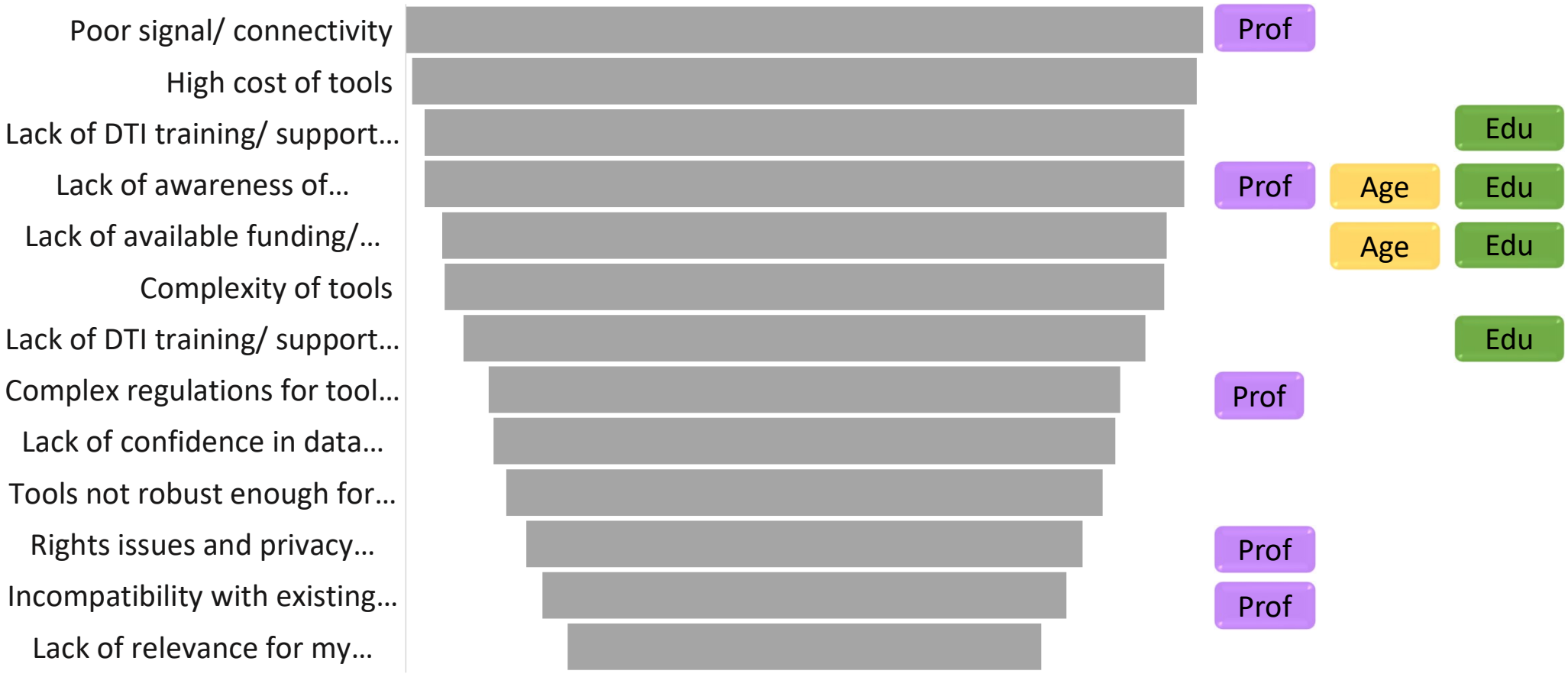


Likert-scale
1 = strongly disagree
2= disagree
3= neither/nor
4= agree
5 = strongly agree

DIGI-Rangeland

Note! These are preliminary results.

Main barriers to using DTI in rangeland farming



DIGI-Rangeland

Note! These are preliminary results.

Main findings at this stage

- Bulgarian rangeland farmers, advisors and researchers still have limited experience with DTI, and most of it is not rangeland specific
- The challenges related to farm operation and land use seem to be fitted to DTI in the assessment of the respondents
- The challenges related to more direct/personal contact both with people and with animals are assessed as less suited to DTI
- The different respondents' groups /farmers, advisors, researchers, students/ seem to be of different opinions on challenges and/or barriers related to
  - conflicts [with other farmers, conservation or forestry],
  - awareness and the availability of trainings
  - the availability of funding

DIGI-Rangeland

Note! These are preliminary results.

Limitations and next steps

- Online survey for a group that is not too used to DTI, especially farmers, which often means that they need to be supported to fill it in [potential bias in responses, e.g. conflicts]
- 80 respondents is a lot but still need additional to reach critical mass at least in the farmer, advisor and researcher groups.

<u>Next steps</u>

- Additional input from more respondents
- Survey of other stakeholders and land users to gain a complete view on the rangeland management challenges and the needs for DTI solutions
- Identifying existing DTI tools and remaining gaps

DIGI-Rangeland

Thank you for your attention!

Yanka Kazakova
y.kazakova@unwe.bg

