

Prioritization of welfare issues and precision technologies for welfare monitoring in dairy sheep in Spain

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Introduction

Rationale: According to the programmed activities of the TechCare project in the work package (WP1), two annual National Workshops (NW) were held in 9 countries of the project consortium during 2022.

Aim: to discuss and to prioritize (Top 3) the welfare issues and sensor technologies to be chosen for implementing PLF for welfare monitoring in dairy sheep and goats, according to production systems.

Materials & Methods

The Spanish NWs were:

- **NW1: 47 participants** (22 scientists, 10 veterinarians, 10 technicians and 5 farmers) from 10 Autonomous Communities prioritized a list of welfare issues (n = 437) from bibliographic references (WP2).
- **NW2: 46 participants** (16 sci., 8 vet., 15 tech. and 7 farm.), prioritized an exhaustive sensor list (n = 116) from bibliographic references and available market products (WP3).
- **NW-Dairy farmers: 40 participants** from the A.C. of Castilla y León (4 vet., 10 tech. and 26 farm.) validated the NW1 and NW2 prioritizations, before the implementation in the large-scale trials in commercial dairy sheep farms.

Google Forms software was used to collect on-line the answers from previously prepared questionnaires and results visualized immediately.



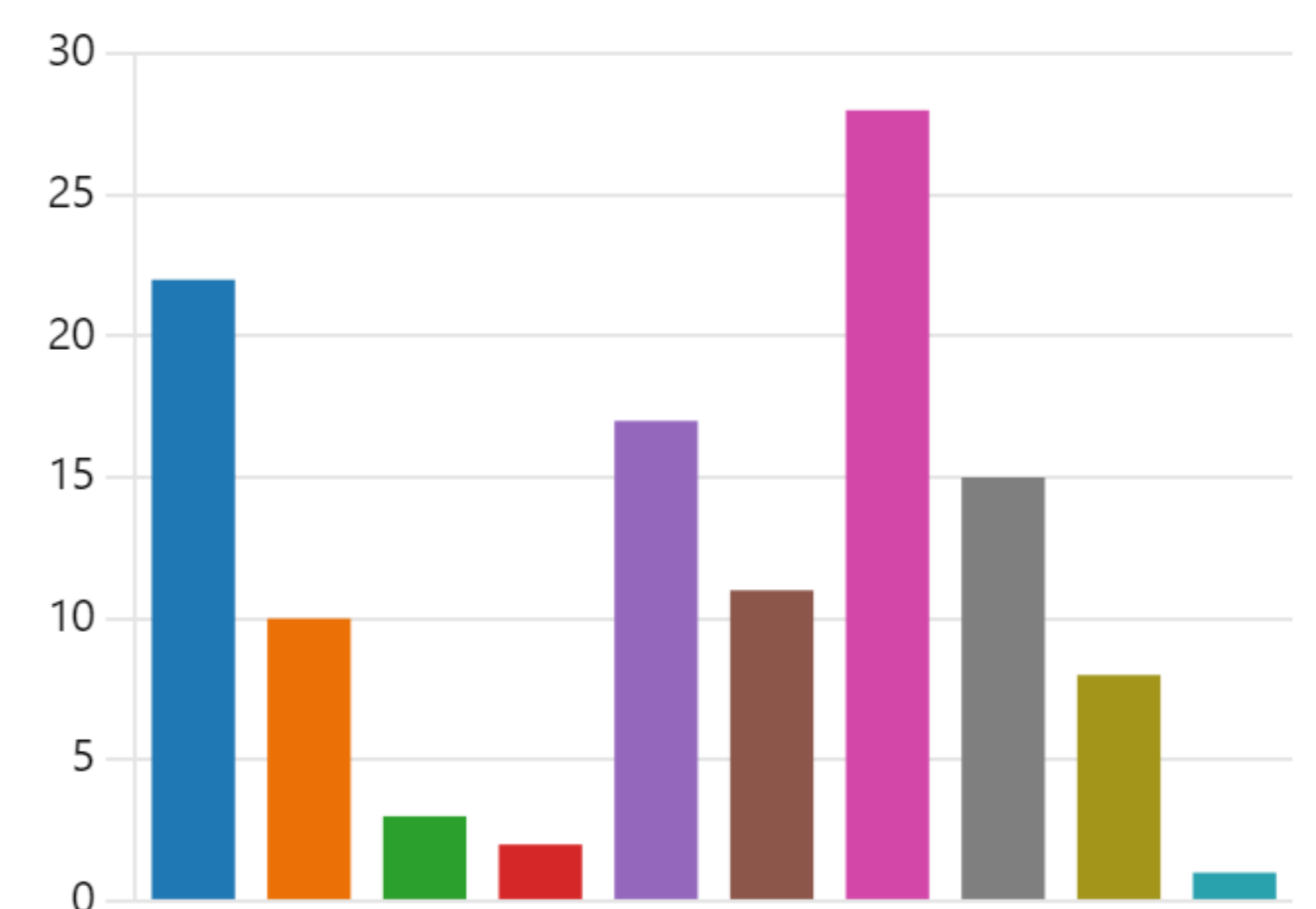
Results

NW1: Top welfare issues in dairy sheep (votes%)

- 1 Mastitis and milking management (79%)
- 2 Nutritional problems (69%)
- 3 Housing and environment conditions (69%)

NW-Dairy farmers: Top welfare issues in dairy sheep

- Abortions and lamb perimortality
- Nutrition (over/bad)
- Water and drinkers
- Lameness and hoof overgrowth
- Housing and environment conditions
- Density and bedding conditions
- Mastitis and milking management
- Respiratory issues
- Pregnancy toxemia
- Digestive issues

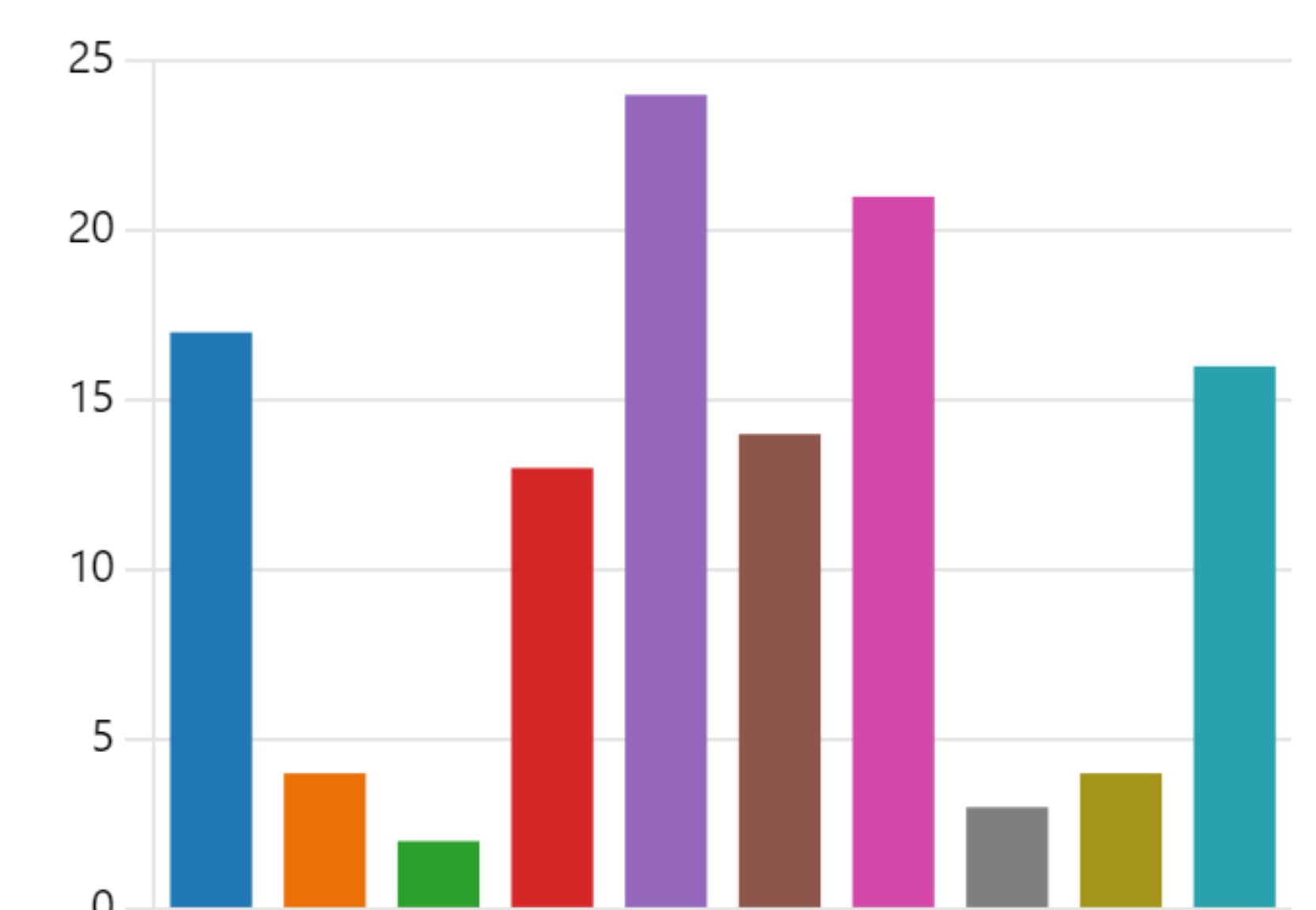


NW2: Top PLF tools for dairy sheep welfare (votes%)

- 1 Weather station with indoor sensors (83%)
- 2 Electronic milk meters (68%)
- 3 Automatic weighing platform-scales (56%)

NW-Dairy farmers: Top PLF tools for dairy sheep's welfare

- Accelerometer
- GPS
- Automatic scale
- Automatic weight platform (WoW)
- Weather station with indoor sensors
- EID reader (low frequency) - RFID
- Electronic milk meter
- Water meter
- Tank daily milk production
- Video camera



Conclusion

Spanish farmers showed their interest on the welfare of dairy sheep and **prioritized the use of:**

- **Weather stations with external and internal sensors** to record the indoor and outdoor environmental conditions.
- Electronic milk meters, accelerometers, video cameras and automatic weighing scales were also considered, but its implementation limited by cost and farm facilities availability.

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