



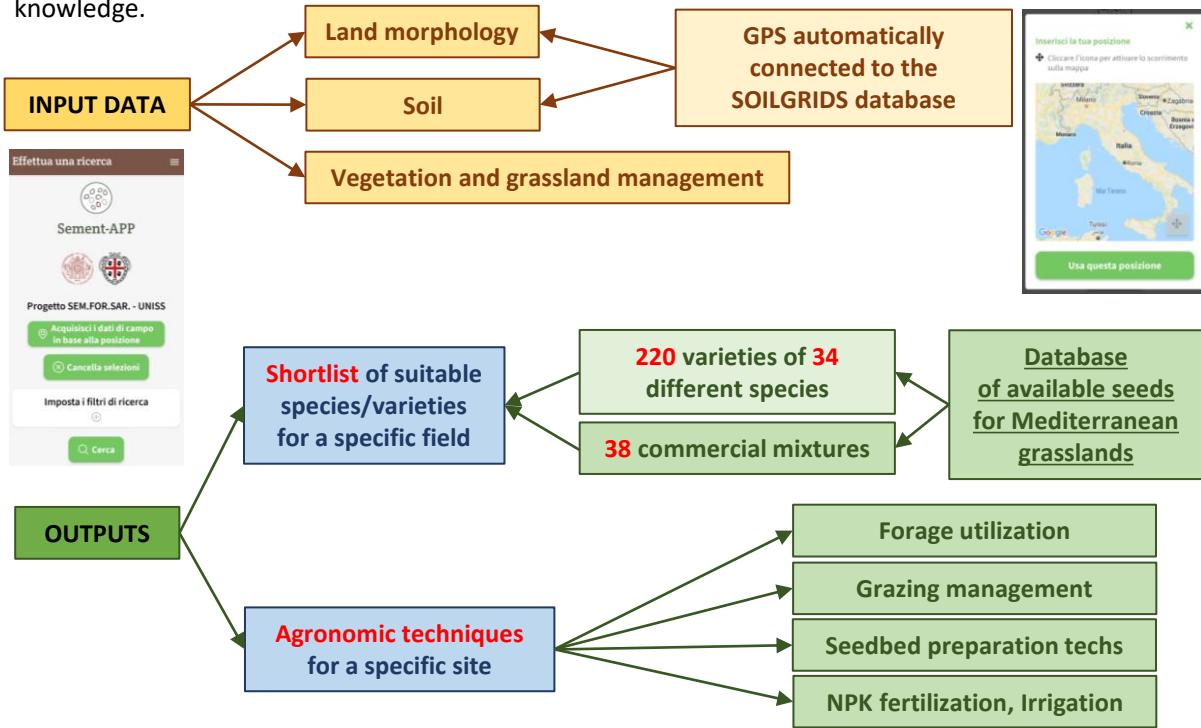
Sement-APP: a decision support system to design sustainable Mediterranean grassland systems.

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Introduction. The sustainability of Mediterranean grassland systems implies that agronomic practices are carefully tailored to specific environmental conditions. Our hypothesis is that combining the available web resources and local data, it is possible to identify the most suitable species, varieties and agronomic techniques for designing sustainable Mediterranean grassland systems.

Materials and Methods. *Sement-APP* is an opensource app. The outputs are selected on the basis of the input informing a species/technique x input variable matrix. The matrix was generated on the basis of the available knowledge either obtained from seed company websites, scientific literature or expert knowledge.



Results

Sement-APP was validated in Sardinia over 40 grassland fields under contrasting environmental conditions.

Most selected species:

- ✘ Only 23% of the varieties were chosen in at least 25% of the fields;
- ✘ Most of the seed available in the market is not suitable for Mediterranean grassland improvement;
- ✘ The most frequent species selected were self-reseeding legumes and summer-dormant cvs. of cocksfoot.

Agronomic techniques:

- ✘ The most frequent techniques shortlisted were rotational grazing, low N and medium P fertilization rates.
- ✘ Liming was suggested in 75% of the fields, due to the frequent occurrence of acid soils in Sardinia;
- ✘ Weed chopping and sod seeding were suggested in 75 % of the sites.

The main limitation of Sement-APP is that few experimental data are available to test the adaptation of the different grassland species and varieties to Sardinian environmental conditions. However, the outputs appeared to be consistent with the site-specific characteristics and what an expert agronomist would have suggested.

Imposta i filtri di ricerca
Evidenziando più di una casella per ogni caratteristica i risultati della ricerca saranno solo le specie e le tecniche che sono compatibili con tutte le caselle selezionate.

Altitudine
 > 500 (montagna)
 250-500 (collina)
 < 250 (pianura)

Disponibilità di acqua irrigua
 Non irriguo (asciutto)
 Di soccorso
 Irriguo

Epoca di semina
 Autunnale
 Primavera
 Estiva

Fisionomia della vegetazione
 Pascolo arborato

Grado di infestazione
 Alto
 Medio
 Basso

Pendenza
 Alta (>15%)
 Media (5-15%)
 Bassa (<5%)

pH
 <5,9 Acido
 6,0-6,7 Subacido
 7,3-8,1 Subalcalino
 >8,2 Alcalino

Pietrosità scheletro
 Alta (scheletro > 15% e rocciosità affiorante)
 Media (scheletro 5-15%)
 Bassa (scheletro < 5%)

Principali infestanti
 Asfodelo

Specie e misc.
Serradella Emena
 Composizione: Specie singola
 Famiglia: Leguminosae
 Tipologia Foraggera: Autoriseminate

Trifoglio brachialcino Antas
 Composizione: Specie singola
 Famiglia: Leguminosae
 Tipologia Foraggera: Autoriseminate

Trifoglio brachialcino Clare
 Composizione: Specie singola
 Famiglia: Leguminosae
 Tipologia Foraggera: Autoriseminate

Trifoglio brachialcino Mintaro
 Composizione: Specie singola

Tecn. culturali
 Trovati 9 risultati compatibili con i filtri.
Gestione pascolamento
 Tipo pascolamento: Turnato

Controllo infestanti
 Mezzi meccanici: Trinciatura

Fertilizzazione
 Concimazione minerale: dose N media (50 - 100 kg ha⁻¹)
 Concimazione minerale: dose N bassa (< 50 kg ha⁻¹ anno⁻¹)
 Concimazione minerale: dose P₂O₅ medio (30 - 60 kg ha⁻¹)
 Concimazione minerale: K₂O (50 - 100 kg ha⁻¹ anno⁻¹)
 correzione pH: dose Calcio alta (5 t ha⁻¹ Ca(OH)₂)

Modalità di utilizzazione

Det. specie e misc.
Trifoglio sotterraneo ianninico Trikkala
 Varietà: Trikkala
 Nome Scientifico: Trifolium subterraneum
 Nome inglese: Subterranean clover, subclover
 Sotto specie: yanninicum
 Numero componenti: 1
 Indice specifico: 5
 Nome comune: Trifoglio sotterraneo ianninico
 Persistenza: > 3 anni

Conclusions

The first release of Sement-APP was able to provide a shortlist of adapted species and varieties and a set of agronomic practices that proved to be suitable for contrasting environmental conditions in Sardinia, thus generating site-specific decision support for grassland improvement. Sement-APP can be a useful tool for practitioners and farmers. The outcomes of the application evidenced that only a few species and varieties among those available in the seed market are suitable to be used for grassland improvement under the specific context of Sardinian grazing systems.

