Evaluating Annual Legume Forage Cover Crops for Southern Great Plains

Suresh Bhamidimarri, Ph.D.
Legume Breeding Group
Noble Research Institute

Brian Motes, Mike Trammell and Hem Bhandari

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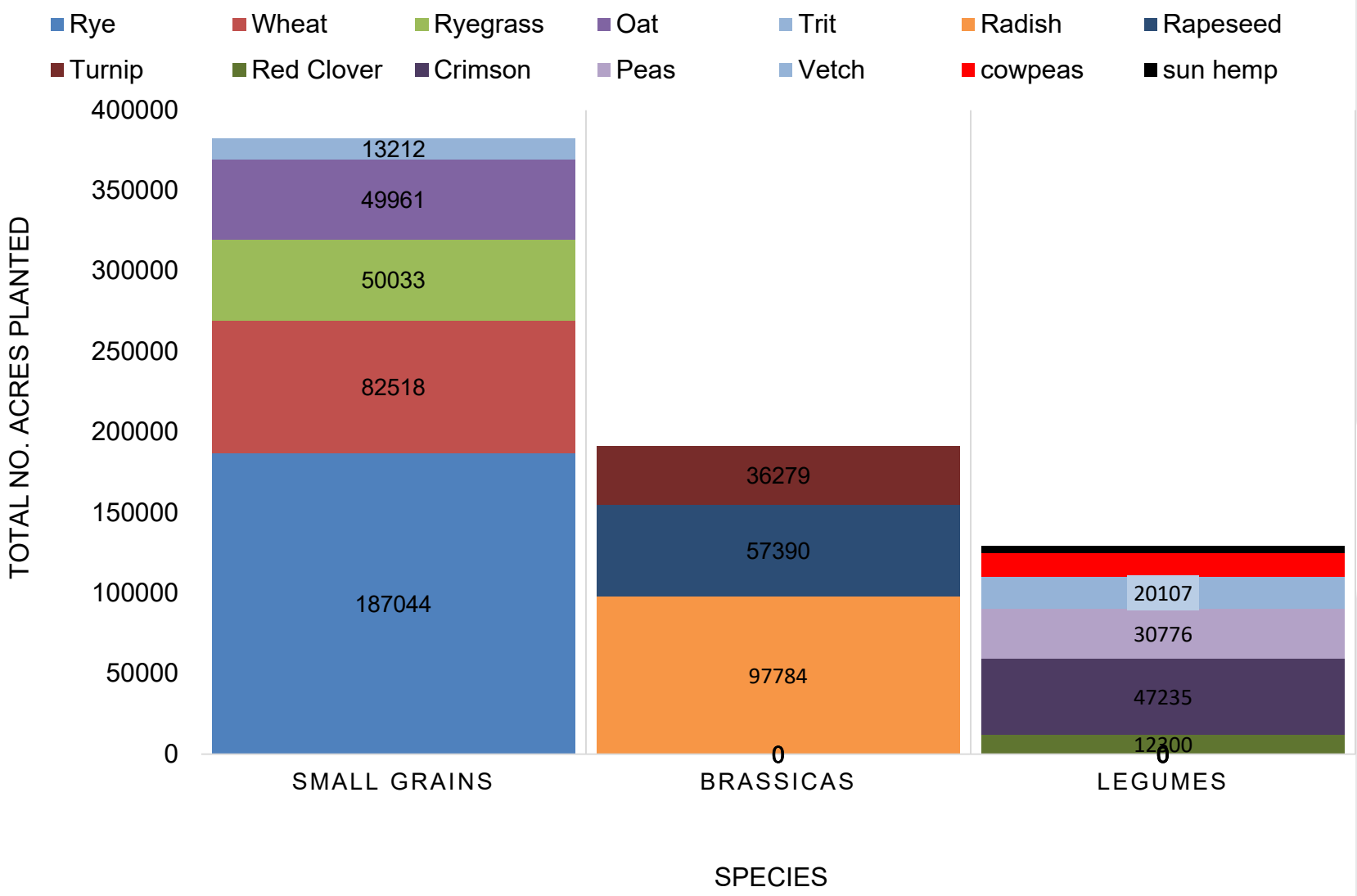
Legume Forages

- Suitable alternative to winter wheat
- Improves seasonal distribution of forage
- Increase the nutritional plane of grazing livestock
- Improve availability of nitrogen and soil physical properties
- Dual purpose

Legume Cover Crops

- Erosion control
- Improved soil fertility, nutrition
- Weed control for the following crop
- Insect, disease control
- Better on farm water management

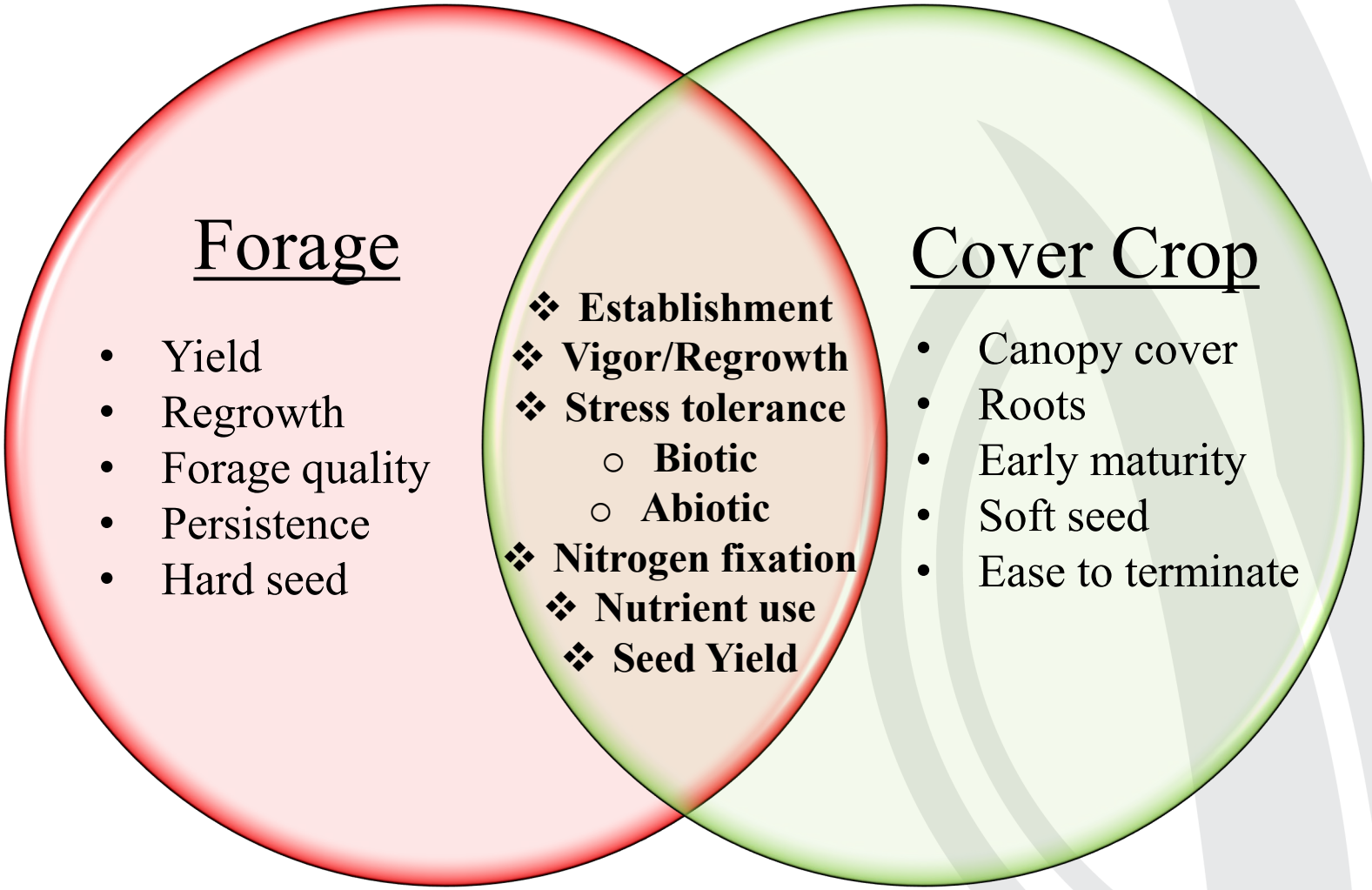
Cover Crop Survey



Forage Cover Crop Species

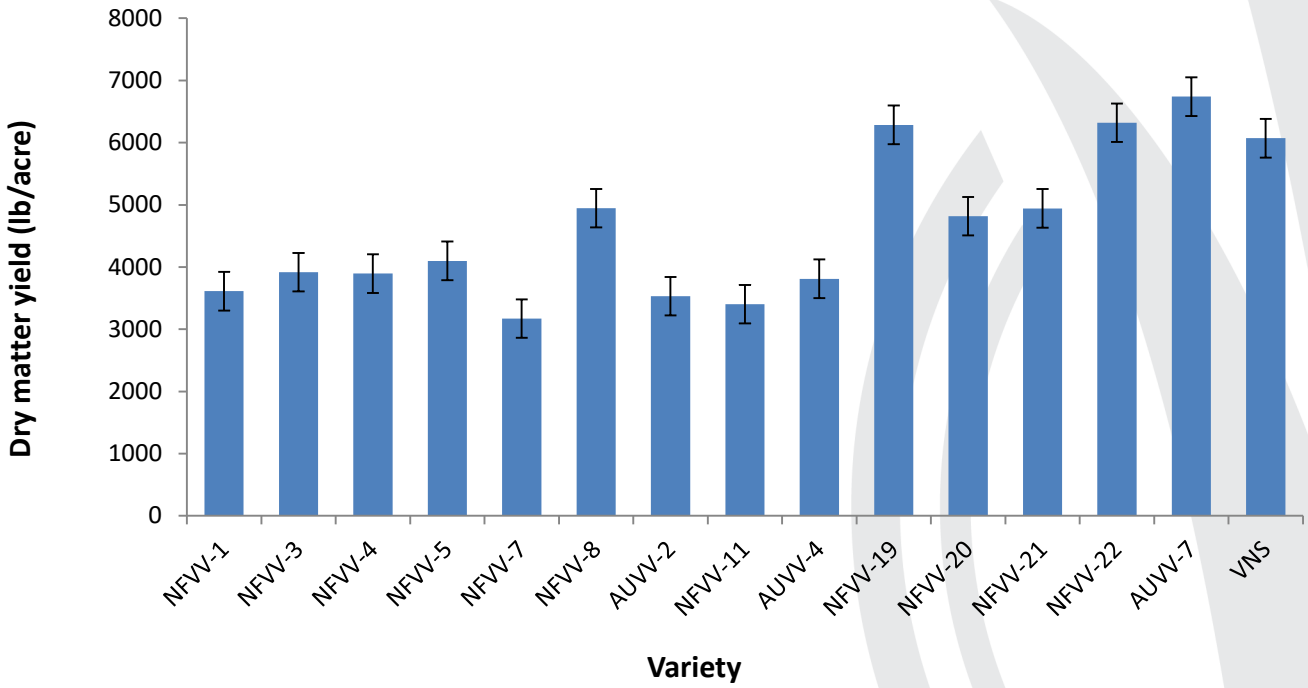
- Hairy vetch (Vicia villosa)
- Crimson clover (Trifolium incarnatum)

Traits of Interest



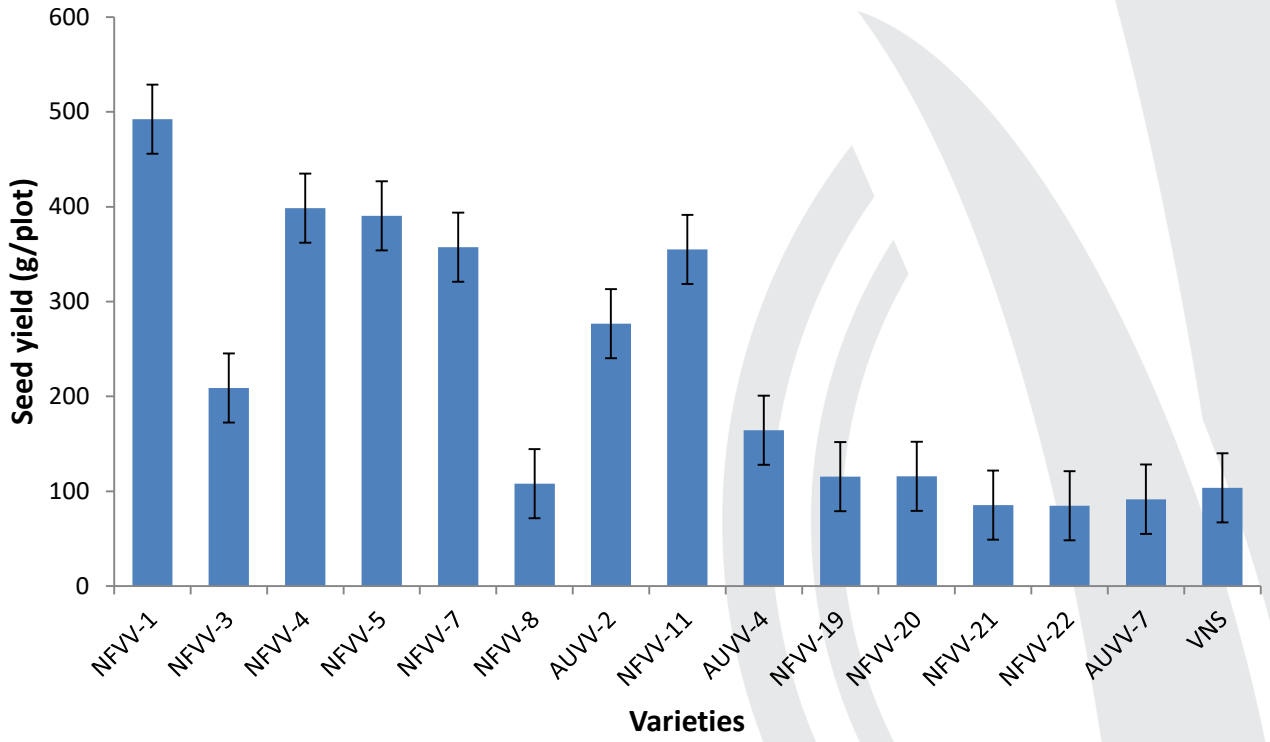
Hairy vetch - Evaluations

Hairy vetch – Biomass Yield



Hairy vetch – Seed Yield

Hairy vetch – Seed Yield



Hairy vetch - Reseeding

Hairy Vetch Germplasm Evaluation

- 68 PI accessions from GRIN
- Four replications
- Six genotypes per rep
- Randomized complete block

- Winter hardiness
- Maturity
- Biomass
- Seed size
- Seed hardiness
- Seed shattering

Country	Accessions
Afghanistan	3
Argentina	2
Armenia	4
Australia	1
Belgium	1
Bulgaria	2
Canada	1
China	2
Cyprus	1
France	2
Greece	3
Hungary	1
Iran	6
Israel	1
Jordan	1
Macedonia	2
Portugal	1
Russia	1
USSR	4
Spain	2
Syria	4
Tajikistan	7
Turkey	7
USA	9

Hairy Vetch Germplasm Evaluation

Crimson Clover Germplasm Evaluation

- 48 PI accessions from GRIN
- Three replications
- 10 genotypes per rep
- Randomized complete block

- Winter hardiness
- Maturity
- Biomass
- Forage quality

Country	Accessions
Belgium	1
Bulgaria	4
China	1
Serbia	2
France	3
Germany	2
Hungary	2
Israel	1
Italy	6
Morocco	1
Portugal	1
USA	24

Crimson Clover Germplasm Evaluation

Crimson Clover Germplasm Evaluation

Germplasm Evaluation

Future Work

- Phylogenetic analysis
- Best performing plants from best performing PI's will be selected
- Seed increase in isolation
- Separate breeding pools for hard/soft seed, forage/cover
- Validation for proximal sensors

Acknowledgments

- Legume breeding group
- Grass breeding group
- Remote sensing group
- Core facility
- Co-authors

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