Business Forum
Tuesday 5:15 – 6:30 pm

Alfalfa strikes back : Who's gaining ground ?

Alfalfa markets in emerging regions: past, present, and future.

Daniel
BASIGALUP

Former coordinator of the Argentine forage breeding program

Argentina

Duane
VANDENBERG

CFGA

Board member

Canada

Maple
YE

Inner Mongolia Land North Agriculture Developement
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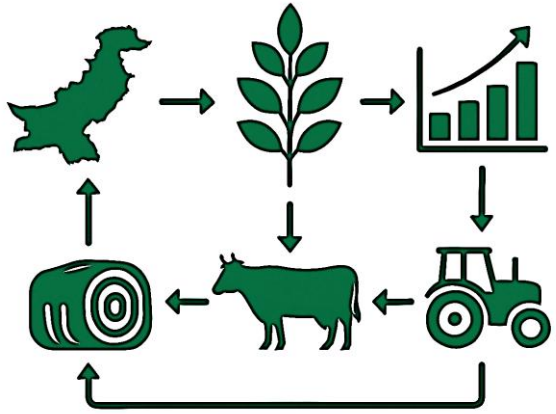
The Alfalfa Crop in Pakistan

Domestic Market, Origins, Challenges, Strengths, and Future Prospects



DR. QAMAR SHAKIL

Chief Scientist, Agricultural Biotechnology Research Institute, Ayub Agricultural Research Institute, Faisalabad, Pakistan.

FODDER CROPS OF PAKISTAN

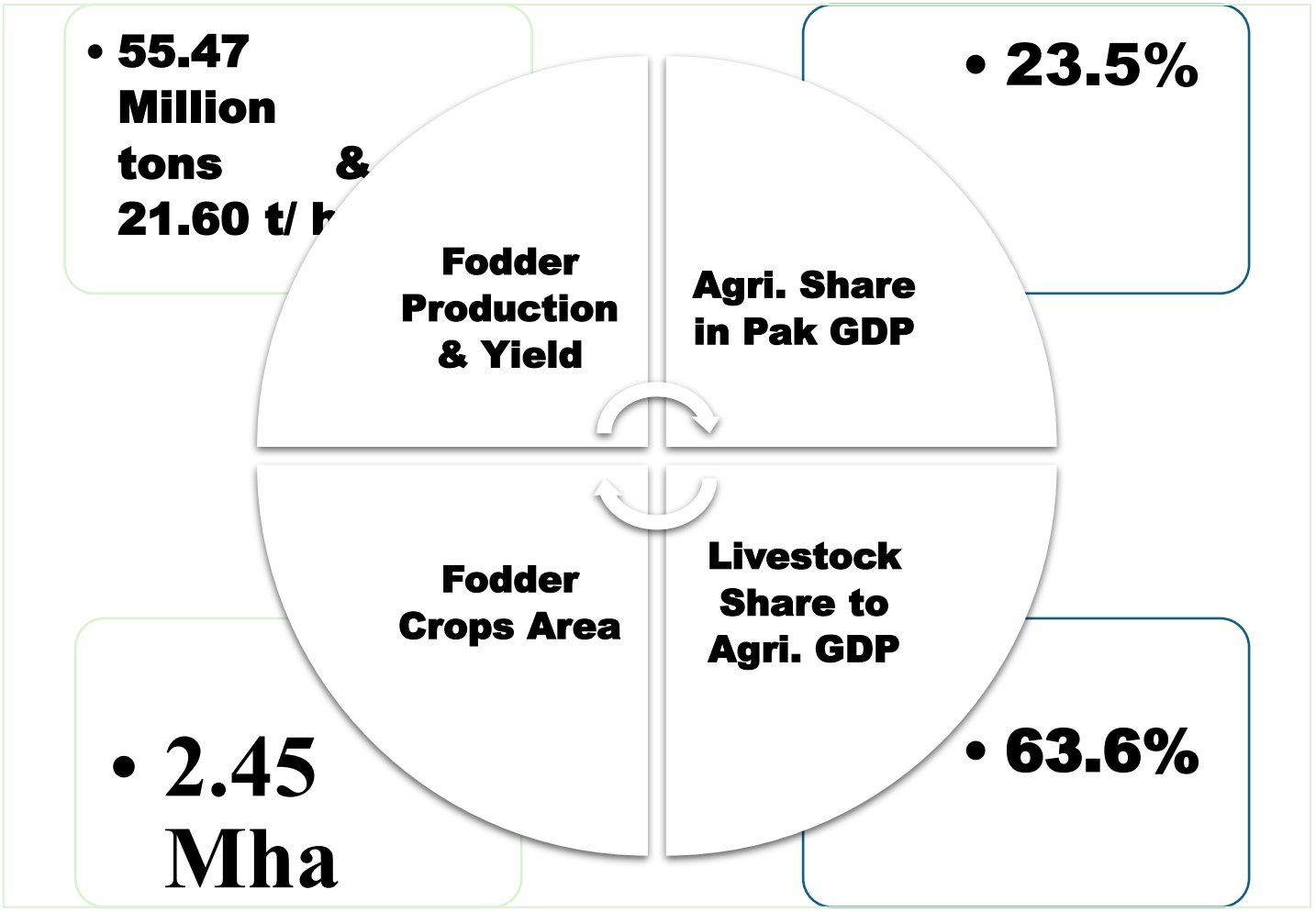
Rabi: Berseem, Lucerne (Alfalfa), Oat, Barley, Mustard, Wheat, Maize etc.

Kharif: Maize, Sorghum, Millet, Mott grass, Guara, Cowpea, Moth, Jantar etc

Crop Residues: Wheat straw, Paddy straw, Sugarcane tops etc.

PRESENT STATUS OF FODDERS IN PAKISTAN

Pakistan



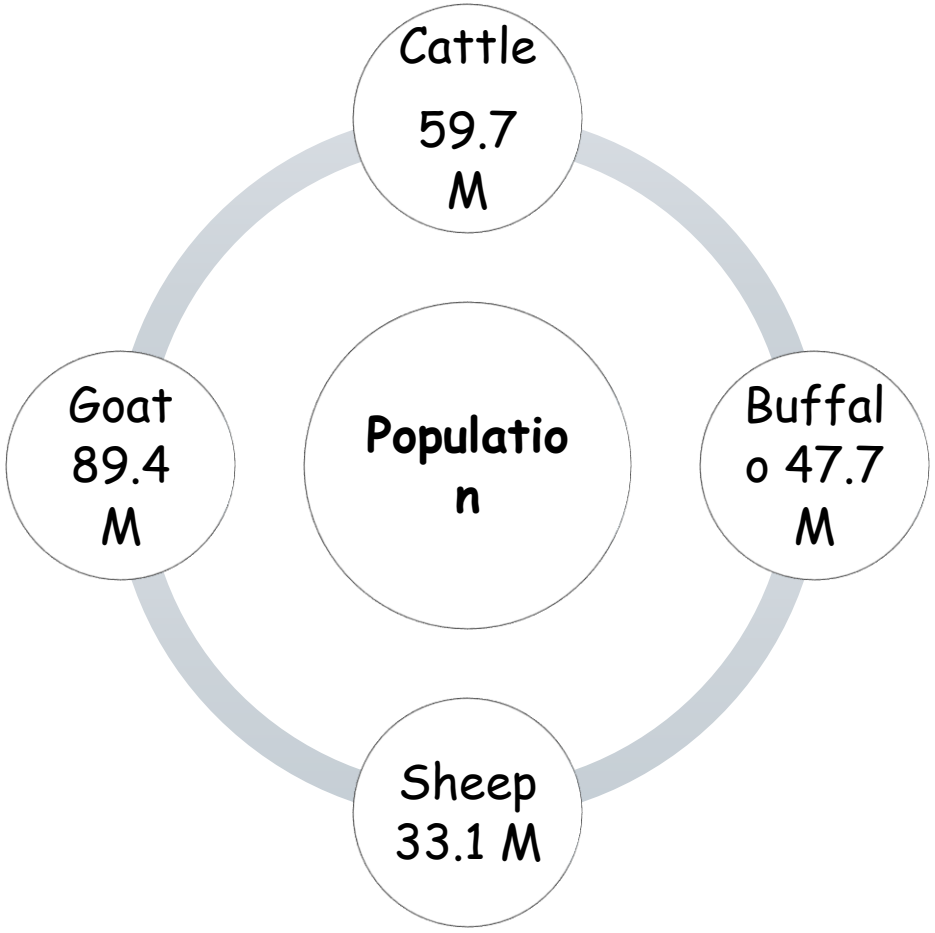
Punjab

- **Fodder Area** • 1.86 M ha
- **Fodder Produce** • 41.98 MT
- **Average Yield** • 22.50 t/ha

(Economic Survey of Pakistan, 2024-25)

LIVESYOCK STATISTICS OF PAKISTAN

Livestock Population



Milk and Meat Production

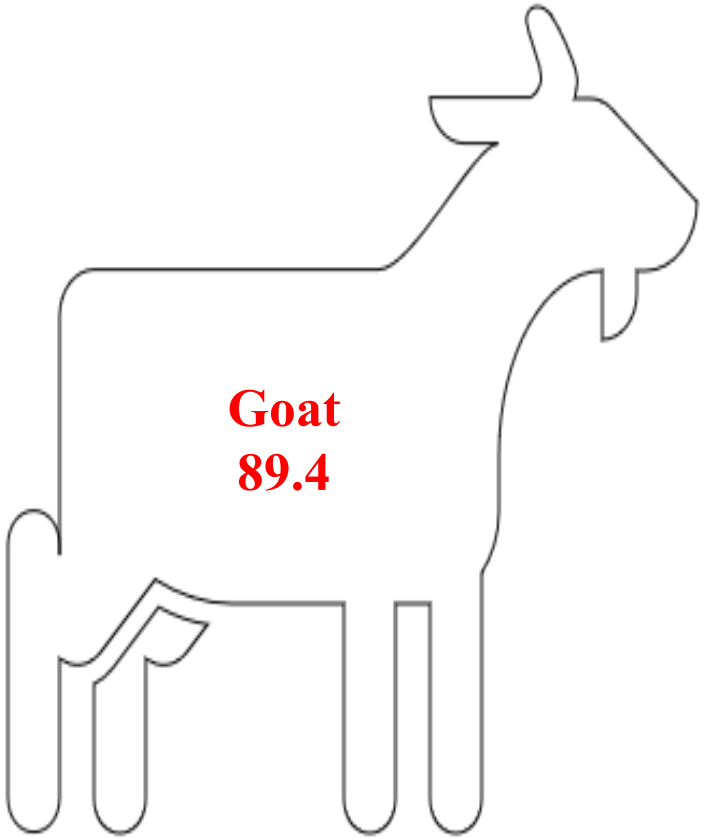
Total Milk
72,343 (000, Tones)

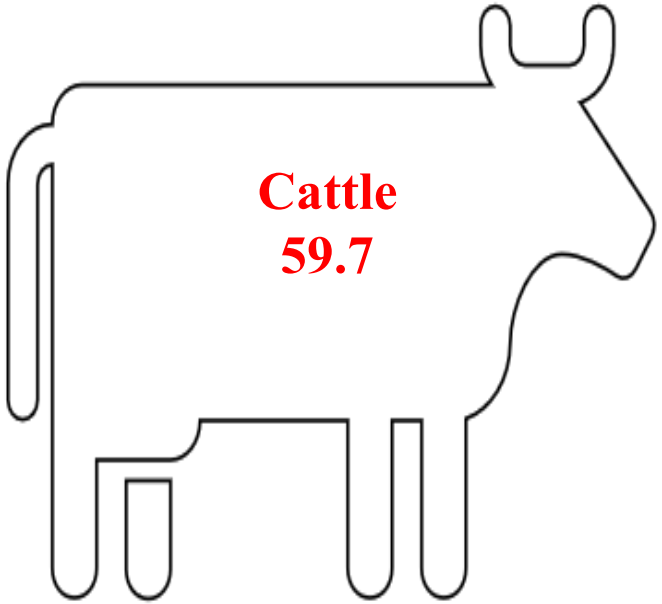
Beef Meat
2,548 (000, Tones)

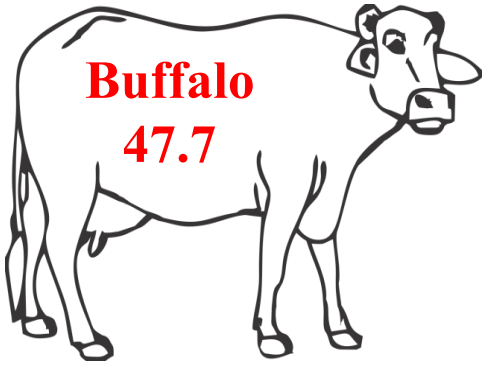
Mutton Meat
835 (000, Tones)

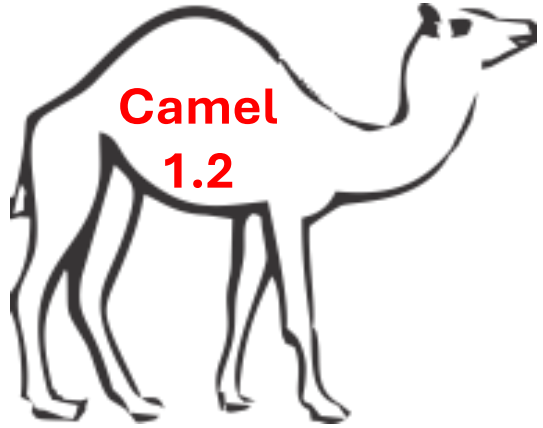
(Economic Survey of Pakistan, 2024-25)

LIVESTOCK POPULATION IN PAKISTAN (M)









(Economic Survey of Pakistan, 2024-25)

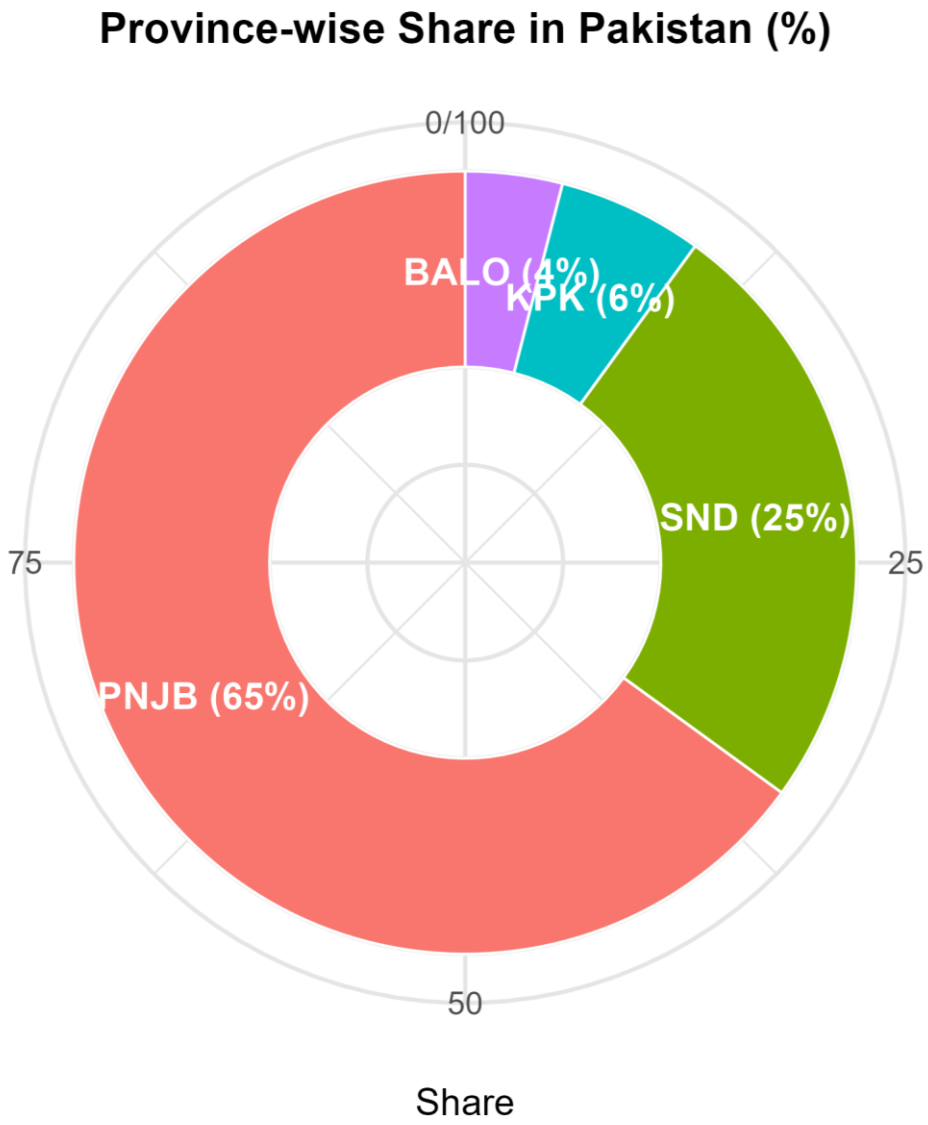
GLOBAL CONTEXT OF ALFALFA

- Leading Producers: USA, China, Argentina, Australia.
- Low Export in China (0.08%) and Russia (0.06%)
- Pakistan ranked 42nd in Alfalfa exporters with only 0.02%
- Export opportunities expanding due to Pakistan's favorable climate
- Rising global demand for alfalfa hay, especially from the Middle East and East Asia
- Competition from major exporters (e.g., USA, Spain, Australia) highlights the need for high-quality, cost-efficient production

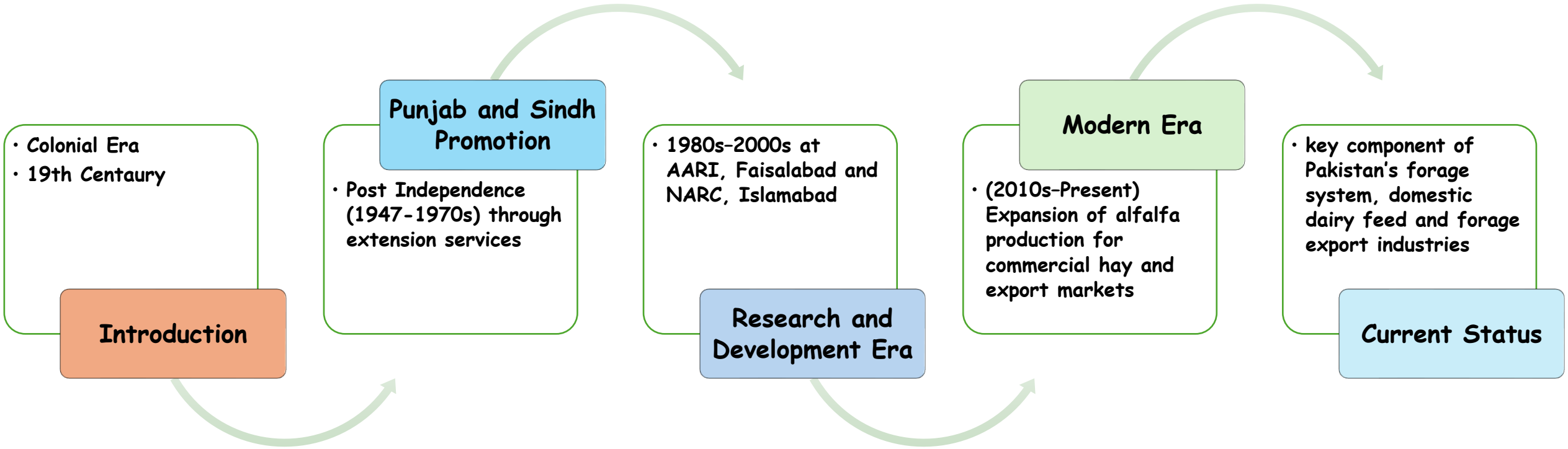
ALFALFA PRODUCTION IN PAKISTAN

Total area:
~350,000 ha (2023).

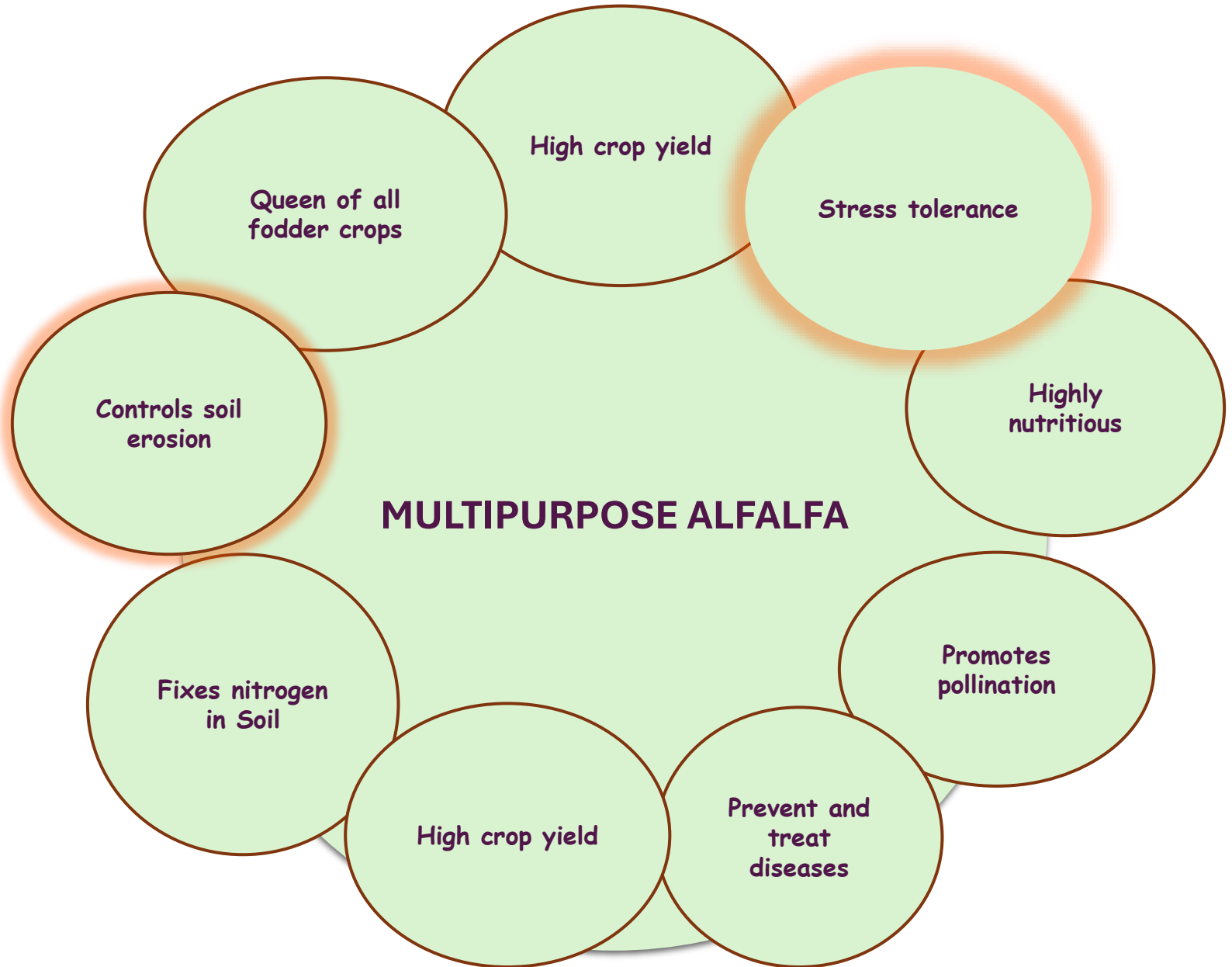
Increasing adoption of improved varieties
(Sargodha Lucerne, Super Alfalfa).



HISTORICAL BACKGROUND



MULTIPURPOSE ALFALFA



OVERVIEW OF ALFALFA

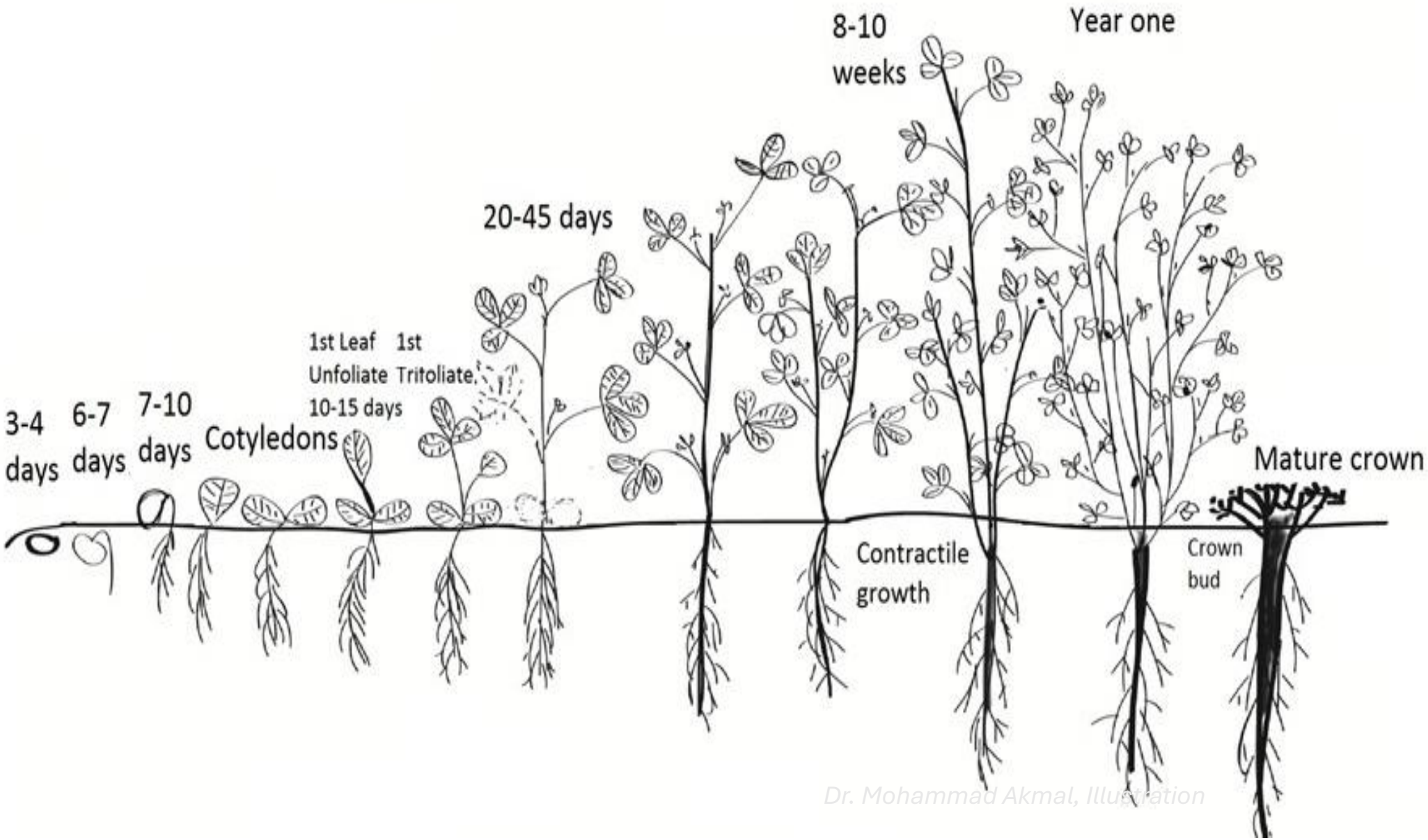
- **Alfalfa** (*Medicago sativa L.*) – also known as Lucerne accounts **for 7% of Pakistan's total forage** cultivation area

- Outstanding **nutritional profile**, which includes high **protein** (15-22%), **digestibility** (55-77%), high amounts of **secondary metabolites**, as well as macro and **micro minerals**

- It offers a sustainable **alternative to traditional** fodder crops, improving livestock productivity

- The adoption of alfalfa can contribute to **enhanced dairy and meat** industries in the region.

ALFALFA MUST BE NURTURED FROM A 'BABY' TO STRONG, DEEP-ROOTED PLANT



DOMESTIC MARKET OVERVIEW

- Consumed mostly in domestic livestock and dairy sectors.
- Pakistan faces **fodder shortages** in **winter (Nov–Jan)** and **summer (May–Jun)**, limiting livestock feed availability.
- **High-yield, nutrient-rich alfalfa varieties** can ensure a **steady year-round fodder supply.**
- To capitalize on **the expanding global market**, **Pakistan must focus on** premium-quality alfalfa varieties while supporting domestic livestock needs.

ECONOMIC IMPORTANCE

Indicator	Value / Impact
Contribution to livestock feed value chain	~40–45%
Share in fodder area	~10–12% of total fodder crops
Average market price (fresh alfalfa)	PKR 2,500–3,000 per ton
Estimated export price (hay)	USD 250–300 per ton
Employment supported	>1 million rural workers

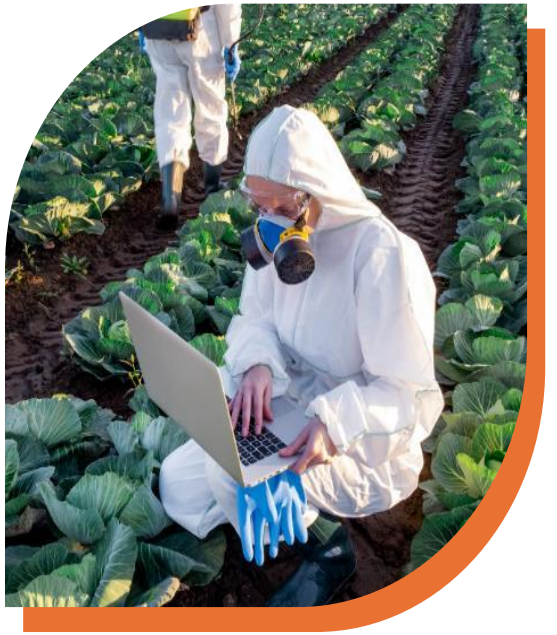
SUPPLY CHAIN STRUCTURE

- Producers: small/medium farmers.
- Buyers: dairy farms, feed mills, exporters.
- Intermediaries: local traders.
- Weak market infrastructure.

SWOT ANALYSIS

MAJOR CHALLENGES

- **Limited availability** of high-yielding, disease-resistant varieties

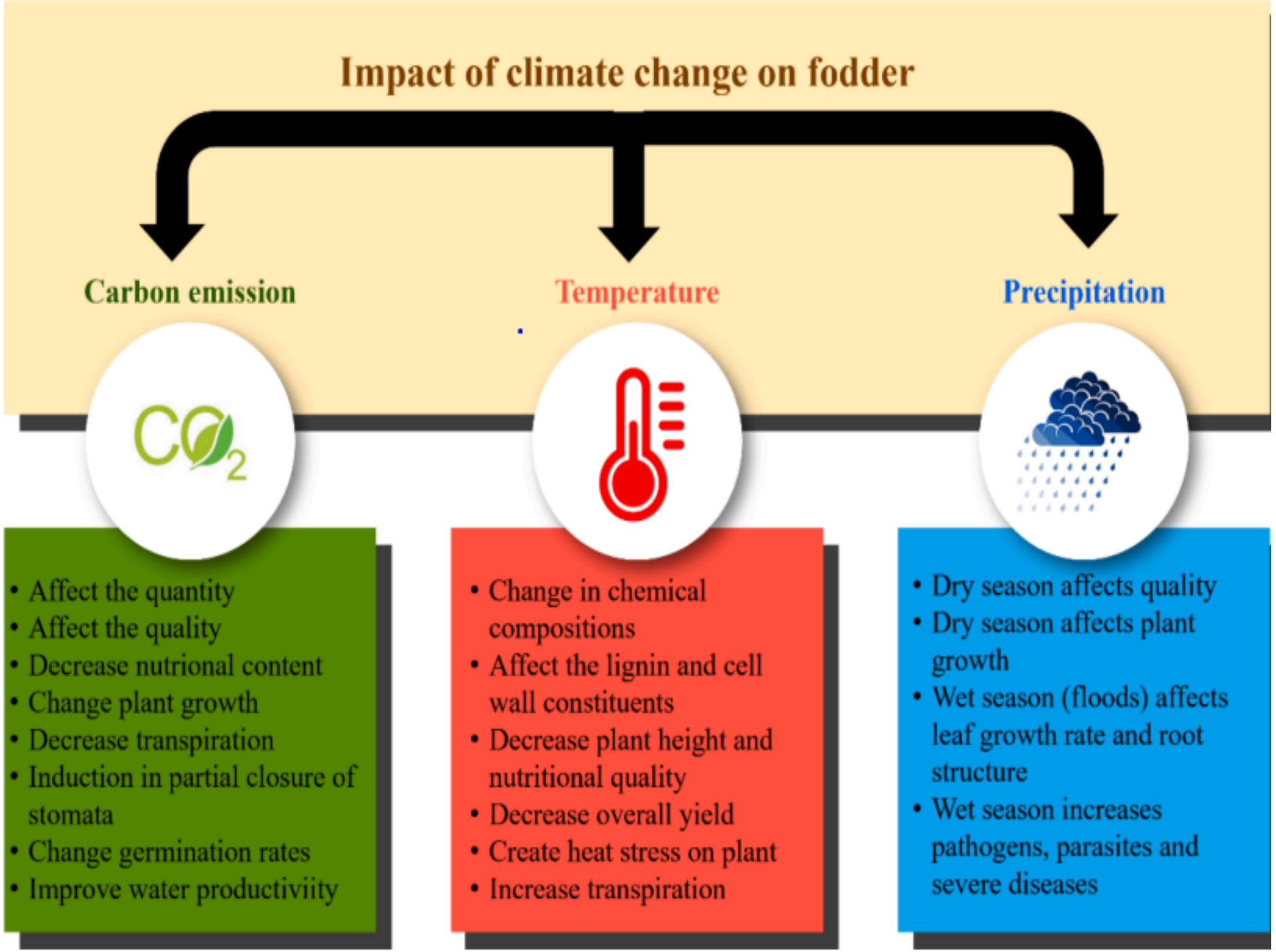


- **Low adoption** of modern irrigation and harvesting technologies

- **Lack of awareness** and training among farmers on improved practices

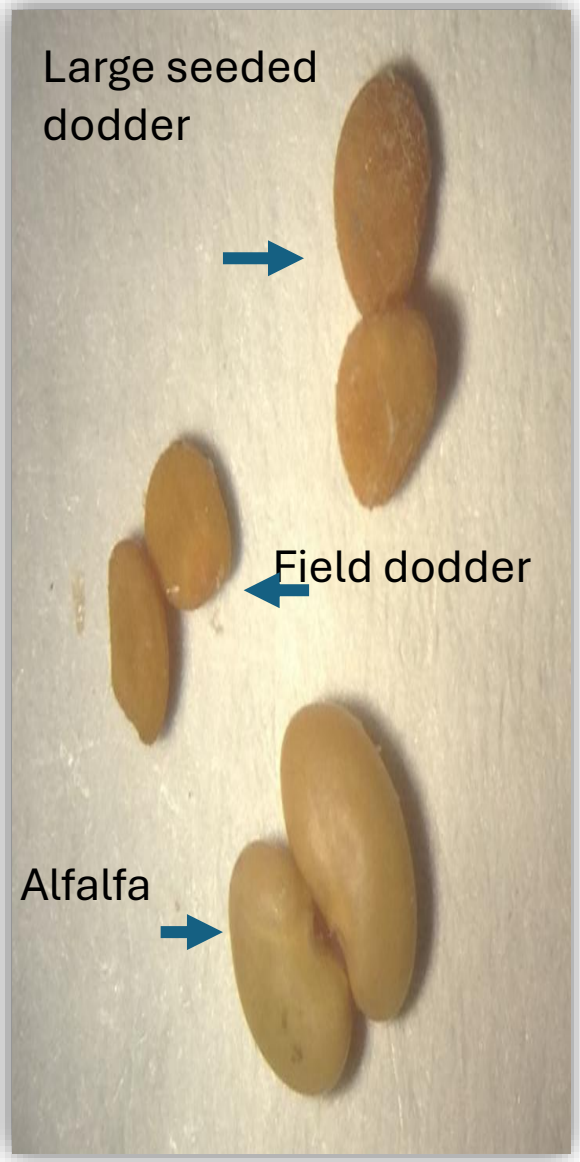
- **Export barriers** including quality standards, logistics, and market access

Impact of climate change on fodder



EXAMPLE: KEEPING DODDER OUT OF SEED

- Dodder (*Cuscuta spp.*) is a parasitic weed and highly problematic in alfalfa and other crops. Seeds can persist in soil for 12+ years.
- Present in all major alfalfa seed growing regions
- Difficult to clean out of seed lots, so plants must be controlled during field production.
- Can be difficult to see from ground



DODDER AND DISEASE PROBLEM

TECHNICAL ADVANCES

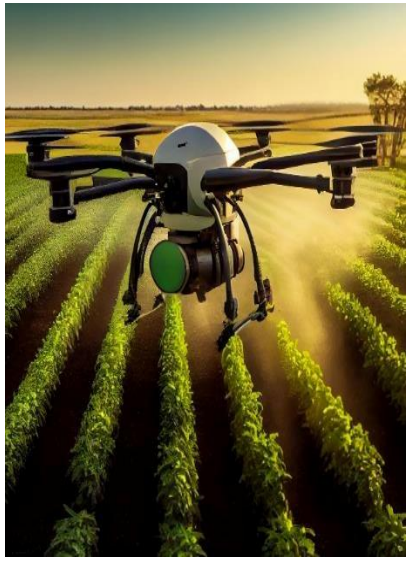
- Precision Agriculture Tools
- Efficient Irrigation Systems
- Soil Health Monitoring
- Mechanized Harvesting and Hay Processing
- Forage Seed Technology & Certification
- Digital Extension Services
- Development of Climate-Resilient Varieties

VALUE ADDITION OPPORTUNITIES

- Branding of "**High-Protein Lucerne**" for premium markets
- **Processed hay** (compressed or dehydrated) for premium export markets
- **Pellet and cube** production for **efficient storage** and transport
- **Silage and feed supplements** to ensure year-round nutrition
- **Certified seed production** to support sustainable alfalfa cultivation

FUTURE OUTLOOK (2025–2035)

- **Strengthen seed systems** through certification and quality assurance
- Shift toward **mechanized harvesting** and hay processing.
- Expansion in southern Punjab and Balochistan.
- Encourage **private sector investment** in processing, packaging, and export infrastructure.
- *Align national policies* to support forage diversification and export competitiveness
- Integration with sustainable livestock supply chains.



POLICY RECOMMENDATIONS

- Introduce Alfalfa Development Program under **National Fodder Policy.**
- **Incentives** for Farmers & Exporters
- Incentivize **private seed** multiplication.
- Encourage **public-private partnerships** in hay export facilities.
- **Launch training** programs and digital advisory platforms
- Facilitate in innovative **technology adoption**

AARI / FRSS ACHIEVEMENTS IN ALFALFA RESEARCH

- Developed **improved alfalfa varieties** with higher yield(8-cuts per year) and protein content

- Conducted **NUYT (National Uniform Yield Trials)** for varietal evaluation

- Implemented **breeding and seed multiplication programs** in Punjab
- Established **forage research and demonstration plots**

Varieties by FRSS, Faisalabad
Pak-CAS, QS-Alfalfa, Shaheen, Chenab, Cholistani

CONCLUSION

- Alfalfa remains a strategic fodder crop for Pakistan's livestock sector.
- Addressing challenges in seed, water, and marketing can unlock major growth.
- A coordinated effort across research, policy, and private investment is vital.
- Research, innovation, and value addition are key to achieving sustainable growth and global competitiveness

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THANK YOU!

Alfalfa to get back into planetary boundaries

2025 world alfalfa congress
FRANCE REIMS-CHÂLONS

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Q & A

FROM 03 TO 06 nov. 2025