Perceptions and Best Practice Adoption of Silvopastoral Systems in the Northern Gulf

October 2025

Working Trees for Adaptation

Silvopastoral systems (SPSs) are the most common and extended agroforestry systems that integrate livestock, forage production and forestry on the same land management unit in dry areas. Broadly, there are two major forms of silvopasture: **grazing and tree fodder systems**. SPSs are deliberately designed and managed to produce a high value timber product in the long term while providing short term annual economic benefit from a livestock component through the management of forage or a yearly crop component.

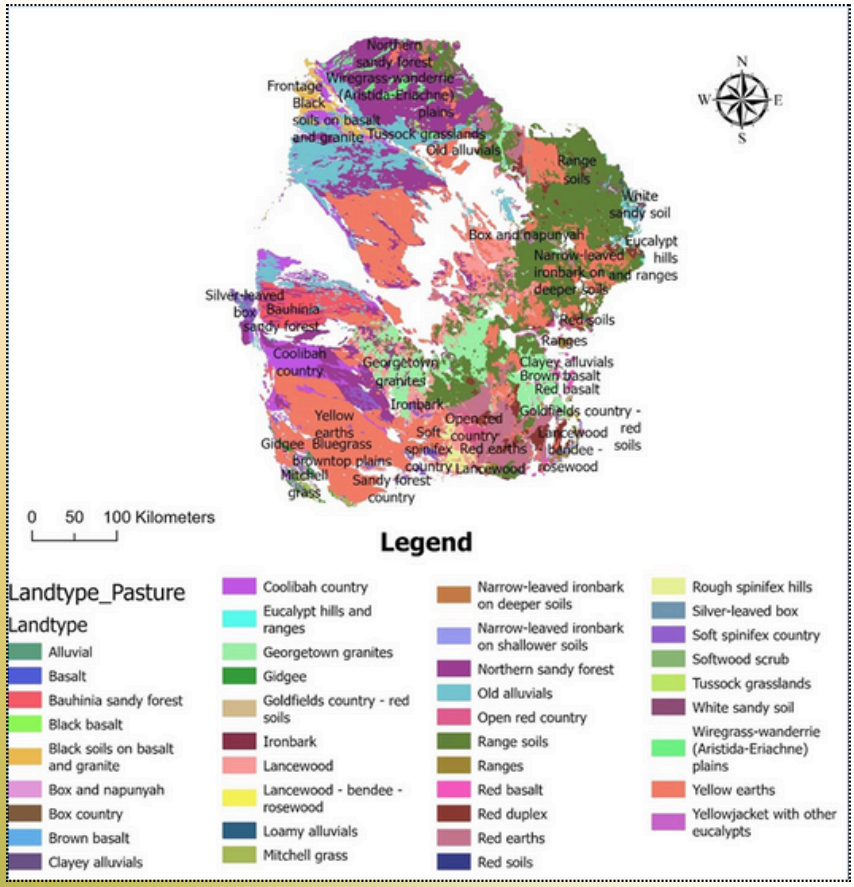


Figure 1.

The distribution of GLM land types available for silvopasture development is based on agricultural land classes C, C2 and C3 in the Northern Gulf region. Total agricultural land is estimated at approximately 12,662,788 ha, distributed across 39 land types.

Seven Potential Tree Species

can be planted in silvopasture models in the Northern Gulf region:

1. **Corymbia citriodora subsp. citriodora (Lemon-Scented Gum)**
2. **Eucalyptus crebra (Narrow-Leaved Ironbark)**
3. **E. camaldulensis (River Red Gum)**
4. **E. argophloia (Chinchilla White Gum)**

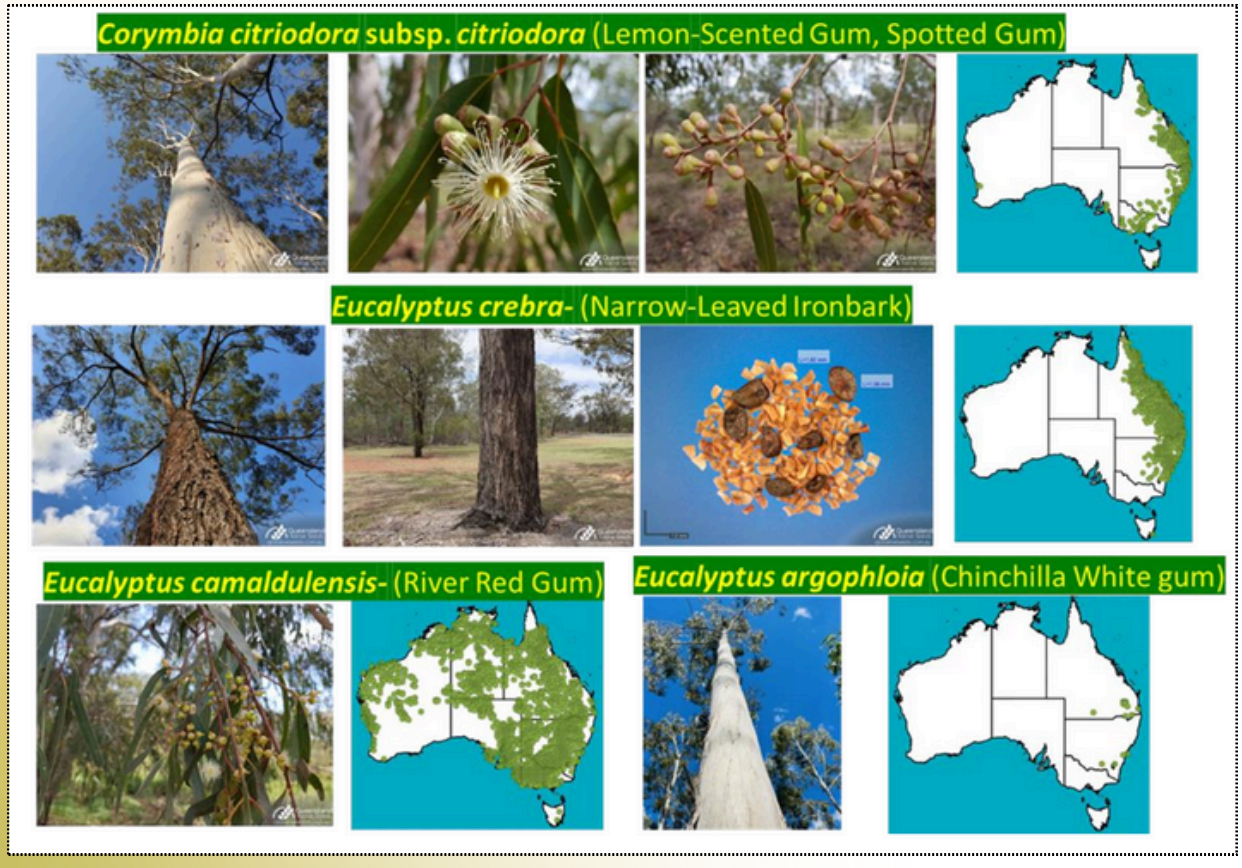


Photo Source: EUCLID and Queensland Native Seeds

5. **E. cambagiana (Dawson Gum)**
6. **E. thozetiana (Napunyah)**
7. **Khaya Senegalensis (African Mahogany)**

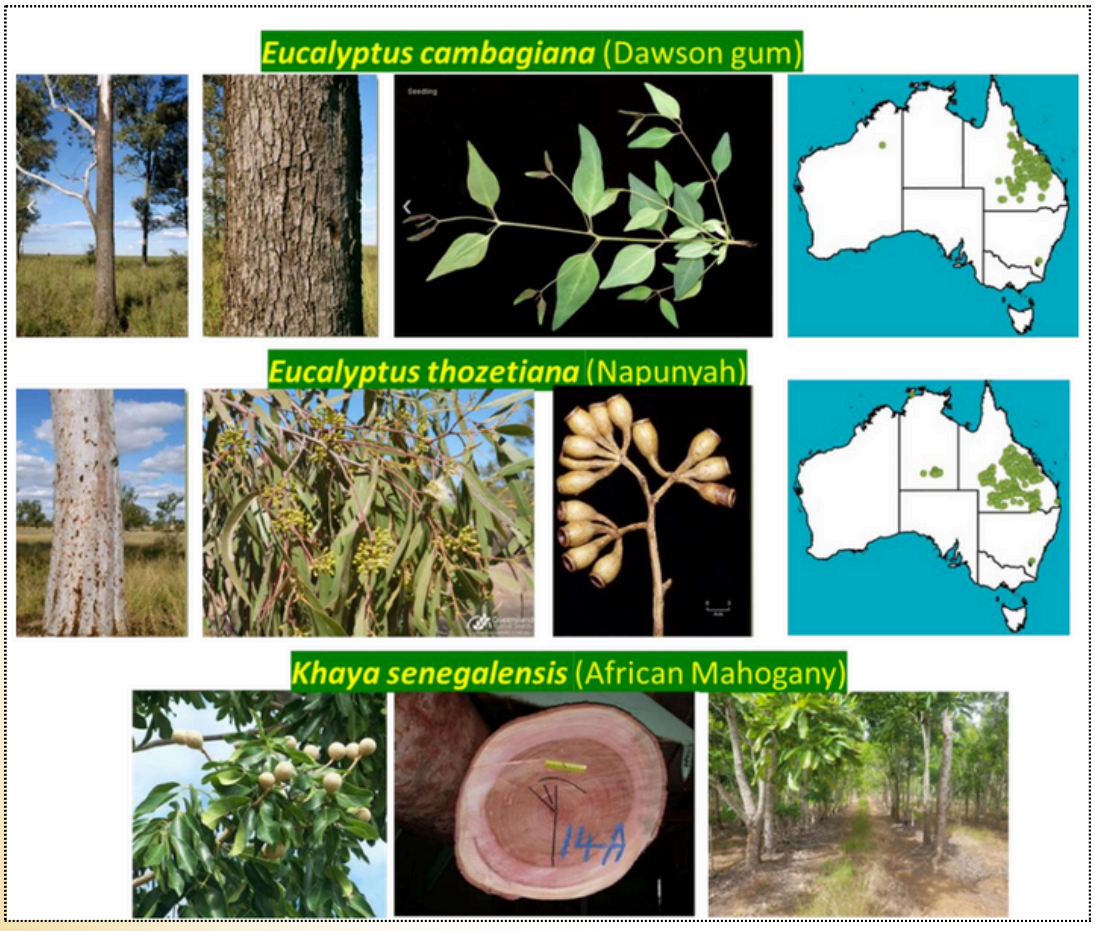


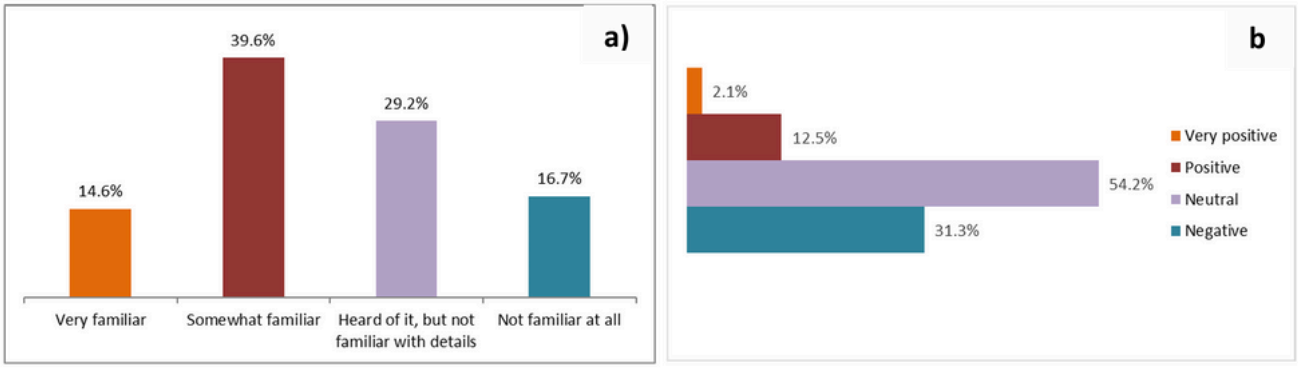
Photo Source: EUCLID and Queensland Native Seeds

Preliminary results indicate that these species show moderate growth, with annual height increments of 0.6 – 1.0 m/year and diameter increments of 0.7 – 1.1 cm/year. Further research, including tree improvement, testing species in different soil conditions and environments, along with long-term data collection is necessary to gain a comprehensive understanding of their adaptation and growth rates in silvopasture systems.

Local & Producer Knowledge - *Familiarity*

When asked about the perceptions of their neighbour's or community's views, **the majority of respondents (54.2%) believed their communities held a neutral stance**, while 31.3% of perceptions were negative and only 14.6% thought the views were positive or very positive. This indicates a potential barrier in public acceptance or understanding of the benefits of silvopastoral systems, with relatively few respondents perceiving strong support for them in their communities. Thus, addressing these negative or neutral perceptions through targeted communication and demonstration of the system's benefits could be key to fostering wider acceptance and engagement.

Figure 2. Current level of familiarity with silvopastoral systems and perceptions within neighbours or communities



Local & Producer Knowledge - *Benefits*

Figure 3. shows that a majority of respondents (56.5%) recognise the comprehensive benefits of integrating trees or shrubs into grazing areas. This suggests that most respondents see multiple benefits from planting trees in pastureland such as **enhanced animal welfare, land rehabilitation, improved ecosystem services, and diversified income streams.** Of the individual benefits, diversified income streams (21.7%) were identified as the most important, indicating the financial potential of silvopastoral systems, particularly through timber production and carbon credits. Enhanced animal welfare (13.0%) also stood out, emphasizing the role of trees in providing shelter and reducing heat stress for livestock.

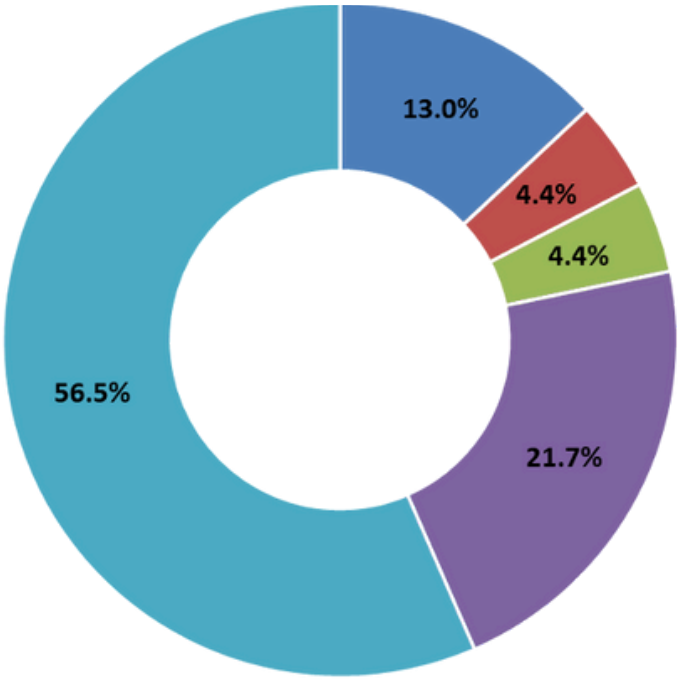


Figure 3.

Benefits of integrating trees or shrubs into grazing areas and positivity impact on livestock's well-being and productivity

- Enhanced animal welfare (relief from heat stress during hot weather, shelter from wind and rain)
- Rehabilitation of land from degradation (e.g soil erosion, salinity and acidification)
- Enhanced ecosystem services (e.g carbon sequestration and climate mitigation)
- Diversified income streams (timber production and carbon credits)
- All the above

Local & Producer Knowledge - *Livestock*

Along with the primary benefits of silvopasture, respondents largely believe that silvopastoral systems could **positively impact livestock well-being and business sustainability**. Over half (51.1%) indicated that silvopastoral systems contribute to the resilience and sustainability of their livestock businesses, while 27.7% noted the potential to increase long-term well-being and reproductive capacity **(Figure 4.)**. The focus on resilience and sustainability reflects a broader recognition of silvopastoral systems as a long-term strategy to enhance both environmental and economic outcomes.

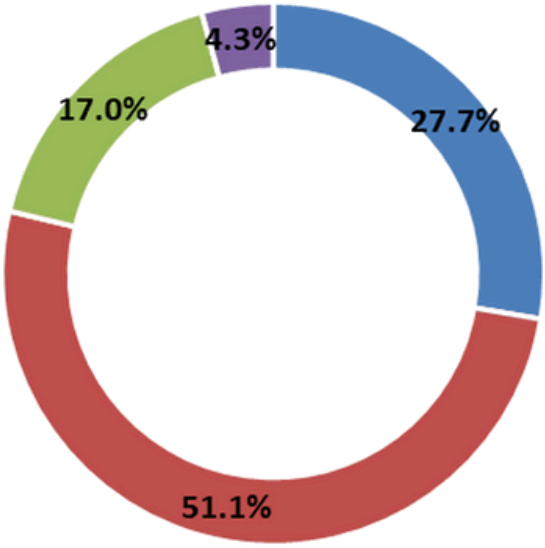


Figure 4.

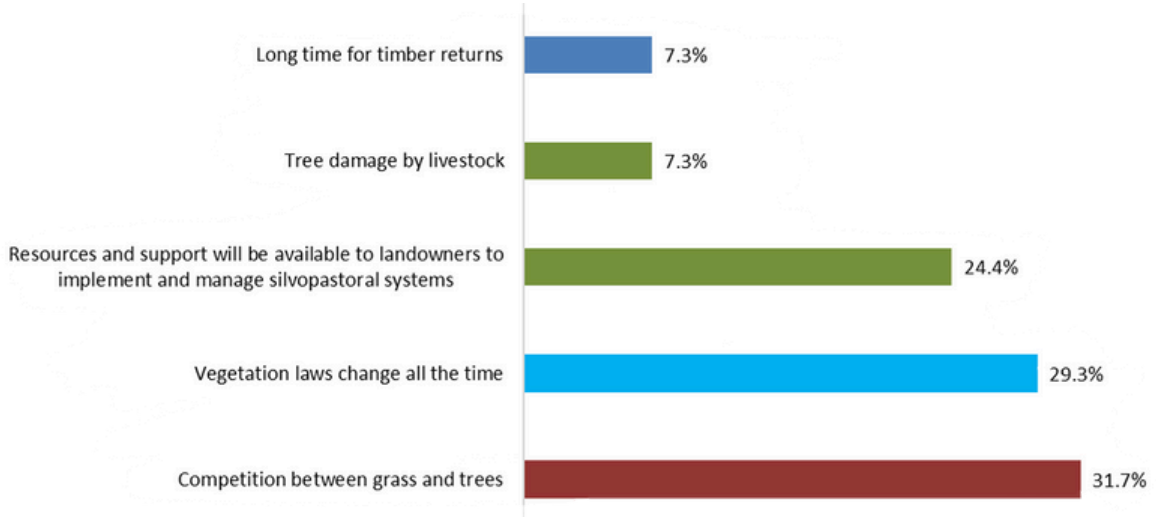
Positively impact livestock well-being and productivity

- Increase long-term well-being and reproductive capacity of the livestock
- Contribute to the resilience and sustainability of your livestock business
- Improved quality of grazing pasture
- Higher cattle weight production

Local & Producer Knowledge - *Concerns*

1) Implanting Trees: Survey results indicate that the primary concern for respondents regarding the implementation of silvopastoral systems is **competition between grass and trees, with 31.7% identifying this as a significant issue (Figure 5.).** This reflects a common worry that trees might compete with pasture for water, nutrients, and sunlight, potentially affecting livestock productivity. A significant proportion (24.4%) of respondents expressed concerns about whether sufficient resources and support would be available to help landowners implement and manage these systems **(Figure 5.).**

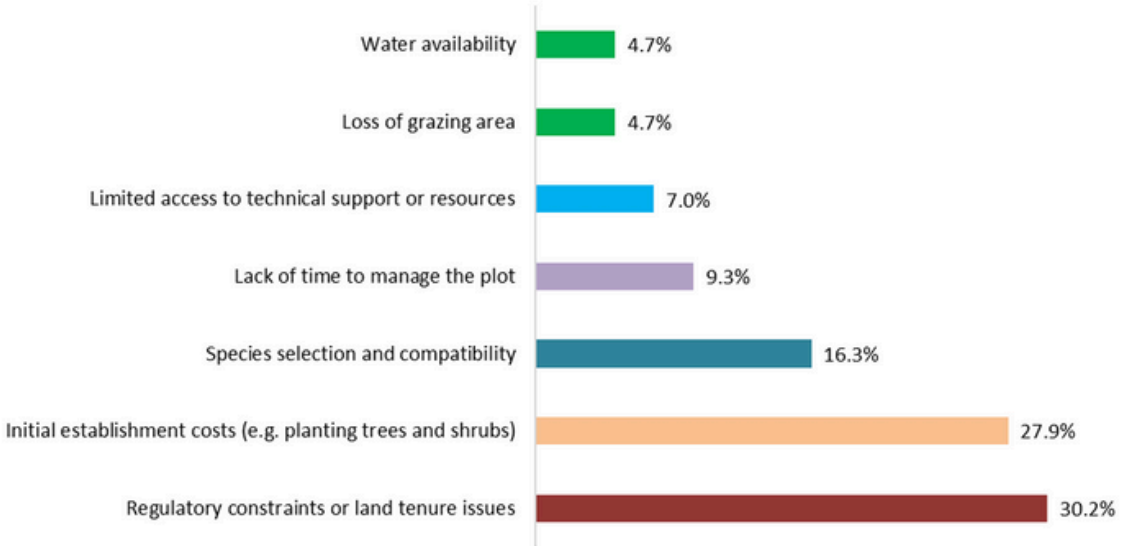
Figure 5. Concerns about implanting silvopastoral systems in grazing areas



Local & Producer Knowledge - *Concerns*

2) Other barries & challenges: Following a factor of frequent vegetation law changes, the main challenges or barriers to adopting silvopasture practices are primarily **regulatory constraints or land tenure issues**, which were indicated by 30.2% of respondents **(Figure 6.).** Frequent changes in vegetation laws create significant challenges for land management, particularly when it comes to land clearing. Even if mapping shows that land is available for clearing under a Category X classification, farmers may still be unable to clear it due to complex regulations. Concerns were also raised about the risk of land being "locked up," which could limit its integration into broader food systems.

Figure 6. Main challenges or barriers to adopting silvopasture practices



Local & Producer Knowledge - *Implementation*

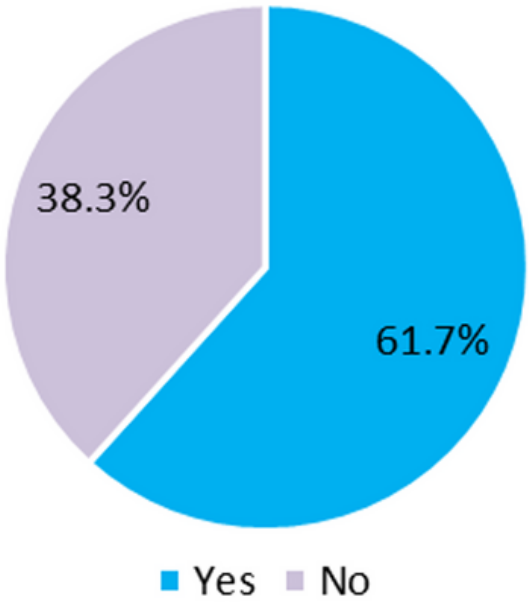


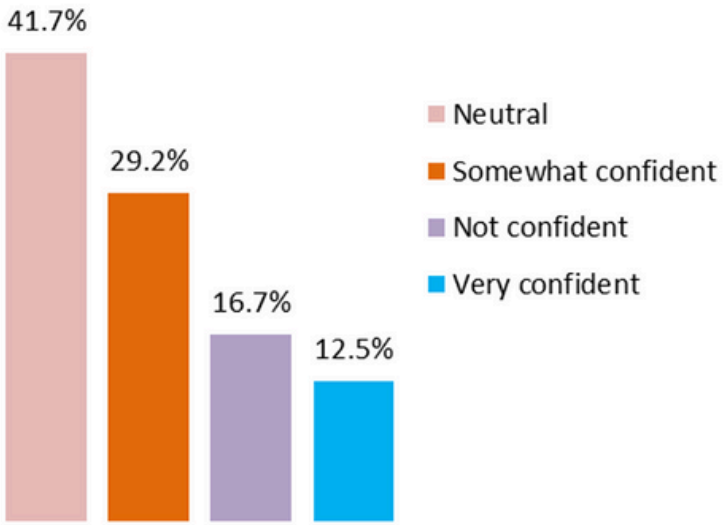
Figure 7.

Consideration for integrating trees into pastureland

When looking at the willingness to plant trees on grazing land, **the majority (61.7%) have considered integrating trees** into their pastureland, which reflects a significant interest in silvopasture and its potential benefits.

Figure 8.

Confidence levels for implementing and managing a silvopasture system



However, **a notable minority (38.3%) have not considered silvopasture,** which could be due to uncertainty or lack of confidence in managing silvopasture systems. This is evident in the responses related to confidence levels: the largest group expressed a neutral level.

Local & Producer Knowledge - *Implementation*

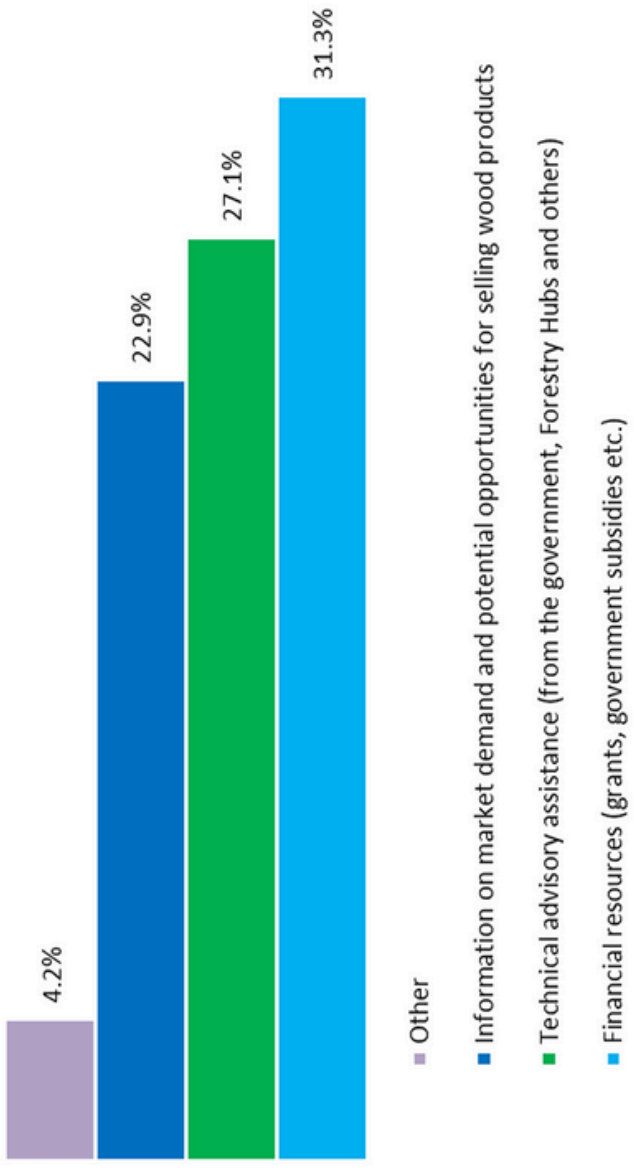


Figure 9.

Additional information or resources needed to facilitate the transition to silvopasture practice

Financial resources (31.3%) was the most requested support, indicating that cost may be a major barrier to adopting silvopasture.

Technical advisory assistance (27.1%) was the second most requested resource, reflecting a need for expert guidance from sources such as government agencies or Forestry Hubs.

Traditional Pasture to Silvopasture

Climate Change Considerations

By 2030, annual average temperatures are predicted to rise between 0.5°C and 1.5°C compared to the 1986–2005 climate. By 2070, the projected increase ranges from 1.1°C to 3.7°C.

The current and projected climate characteristics emphasise the importance of establishing silvopasture trials in the Northern Gulf region to enhance future climate resilience and drought resistance.

The importance of engaged landowner management and technical assistance for tree and forage systems Silvopasture is a management option requiring a high level of management. Unlike traditional single product systems (i.e., intensive grazing), managing trees, cattle, and forage within silvopasture systems demands technical expertise and a deep understanding of each component's role and interaction. Silvopasture is not simply a 'plant it and leave it' situation.

Traditional Pasture to Silvopasture

Planning and Establishment Considerations

Livestock must be intensively managed in silvopasture systems to ensure the sustainability of both the trees and the pasture. Key factors such as **timing and duration of grazing, stocking rates, and carrying capacity** of the pasture must be carefully monitored to maintain site quality and tree seedling survival by minimising damage to seedlings (especially during the first to second year after planting trees). Depending on the density and growth rate of both trees and forage, livestock should be rotated between 'pastures' to support growth and productivity of trees and forages.

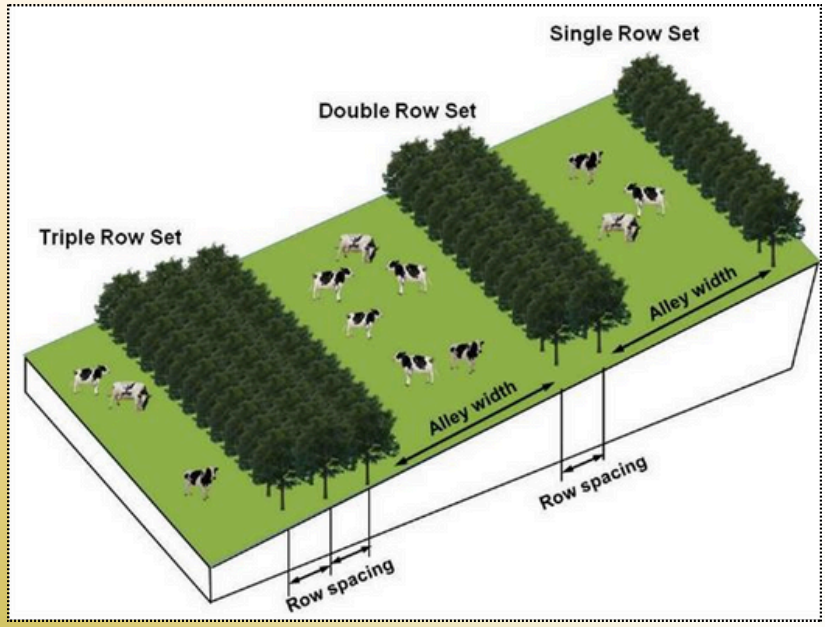


Figure 10.
An example design of silvopastoral systems with single, double or triple rows (source: USDA National Agroforestry Center 2000)

Trees in silvopasture systems can be established in one or two ways: **thinning existing trees in native forests, or planting new trees on existing pastureland.** There are common tree planting configurations such as single-row plantings, double-row plantings and multiple-row plantings. Integrating tree legumes and herbaceous legumes can also improve soil nutrients.

More Information

North Queensland Regional Forestry Hub

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Gulf Savannah NRM

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