

Do bamboo forests contribute to aboveground carbon storage in Taiwan?

Taiwan is rich in bamboo resources, and numerous studies have addressed CS in various bamboo forests. To understand the contribution of various bamboo forests to aboveground carbon storage (ACS) and its influencing factors, we integrated the data from relevant bamboo forest ACS research (including aboveground biomass) in Taiwan.

What is the ACS capacity of bamboo in Taiwan?

To assess ACS capacity for some important bamboo species of Taiwan, four bamboos were compared by ANOVA and the LSD method. The ACS of Ma bamboo ( $48.94 \text{ Mg ha}^{-1}$ ) was significantly higher than that of Moso bamboo ( $33.18 \text{ Mg ha}^{-1}$ ) and Makino bamboo ( $22.22 \text{ Mg ha}^{-1}$ ). 3.

Why is a bamboo species important in Taiwan?

Because this bamboo species had high productivity and both of its culms and shoots had economic values, researches were highly interested in this bamboo species in Taiwan (Yen and Lee, 2011, Yen, 2015, Yen, 2016). In recent years, high potential of CS was also found in this bamboo species.

Can biomass estimations predict carbon storage?

In recent years, this approach has also been widely employed to predict carbon storage (CS) because CS is close to half of bamboo biomass, indicating that CS can easily be converted from biomass estimations (Li et al., 2016a, Sun et al., 2013, Yen et al., 2010).

How many types of bamboo are there in Taiwan?

Six bamboo species are widely planted in Taiwan due to their economic benefits: moso bamboo, makino bamboo, ma bamboo (*Dendrocalamus latiflorus*), green bamboo (*Bambusa oldhamii*), longbranch bamboo (*Bambusa dolichoclada*) and thorny bamboo (*Bambusa stenostachya*) (Lu 2001; Yen et al. 2010; Yen and Lee 2011; Yen 2015; Sun and Yen 2017; Liu et al. 2019). ...

How do you calculate biomass?

Biomass can be calculated by multiplying estimates of carbon by a conversion factor of 2.1048. This study used the current annual increment and the mean annual increment to estimate the gross accumulation trends for carbon in stands.

Modeling the ratios for *Zelkova serrata*, an important native reforestation tree species in Taiwan, helps in understanding its biomass allocation strategy to design effective ... The 4th Taiwan National Forest Resource Inventory conducted between 2008 and 2012 reported that total carbon storage in Taiwan forests was 754.3 Mt CO<sub>2</sub> or 347. ...

Feedstock is stored at a collective storage facility and then transported to the plant from the intermediate

storage location. Biomass Storage Systems. The type of biomass storage system used at the production site, intermediate site, or plant can greatly affect the cost and the quality of the fuel.

In Taiwan plantations of the Liukuei Experimental Forest managed by the Taiwan Forestry Research Institute, 2 stands aged 20 and 27yr were selected to estimate the biomass and carbon storage in the ecosystem. According to the allometric equation established by data of 38 harvested trees, the biomass of each component and the total biomass of ...

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The event comprises four sub-exhibitions: PV Taiwan, Wind Energy Taiwan, Smart Storage Taiwan, and Emerging Power Taiwan, seamlessly connecting stakeholders across the entire green energy industry, from upstream to downstream. Each sub-exhibition features the latest products, technologies, and solutions shaping the future of renewable energy.

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The characteristics of the storage to be used are highly case-specific due to the fact that there are several crucial factors to be considered, such as the biomass type to be used, the local availability of biomass in terms of quantities and seasonality, the flexibility of potential biomass suppliers, the space availability at the site, the ...

One promising method is Biomass Carbon Removal and Storage (BiCRS). BiCRS combines the natural ability of plants to convert carbon dioxide into biomass with human engineering to store the biomass, or derived products (char), belowground where it won't decompose. By securely storing these materials underground, we can trap the carbon dioxide ...

Easy Storage Taiwan? 14? Location. ???(???) ???; ???; ???; ???; ???; ???(NEW) ???; ???; ???; ???; ???; ???; ???; ???; ??? ...

The flowchart of model application to predict stand volume, aboveground biomass accumulation, and carbon storage capacity of Konishii fir (*Cunninghamia konishii* Hayata) plantation in central Taiwan.

Highlights Forests in Taiwan are among the most carbon dense forests in the world. Factors influencing the aboveground biomass (AGB) are site specific. Factors influencing AGB includes topography, stem density and species richness. Niche complementarity was important in AGB accumulation. Typhoons drive spatial heterogeneity of carbon stock in these ...

Our estimation of carbon storage of Taiwan's 51 forest types in 2006 showed a total value of 165.6 Mt C, and

the forest carbon storage per unit area was 71.56 t C ha<sup>-1</sup>. This is approximately the same as the world average of carbon stored in above-ground and below-ground biomass (72.6 t C ha<sup>-1</sup>) and surpasses the Asian average (60.3 t C ...

Modeling biomass allocation strategy of young planted ... between 2008 and 2012 reported that total carbon storage in Taiwan forests was 754.3 Mt CO<sub>2</sub> or 347.9 t CO<sub>2</sub> ha<sup>-1</sup> (115,17). Of the total ...

Topographic and biotic factors are known to regulate carbon storage in forest ecosystems. Topographic characteristics such as elevation and aspect are known to drive patterns of tree species distribution (e.g., McEwan and Muller, 2006) and influence aboveground biomass (Valencia et al., 2009). For instance, de Castilho et al. (2006) found that topography ...

Energy & Storage Bioenergy Industry Map ... They indicate that the goal of biomass electricity generation capacity should achieve 805~1,329 MW by 2030 and 1.4~1.8 GW by 2050. In 2022, the electricity generation capacity was 158 GWh, where the two main technologies are Waste-to-Energy and biogas electricity generation, while other technologies have ...

The thorny bamboo of this study was sampled in southern Taiwan; its basic biomass accumulation and carbon storage of each aboveground component (leaves, branches, and culms) were determined in a ...

Bamboo dominates in biomass accumulation and carbon storage due to its rapid growth, which has been widely reported worldwide. Thorny bamboo (*Bambusa stenostachya*) is one of the most dominant bamboo species in Taiwan due to its multiuse functions. The aims of this research were to assess the aboveground biomass (AGB) and carbon storage capability ...

In this paper, we examined bamboo resources and reviewed studies concerning bamboo biomass, carbon storage and sequestration for different bamboo species and at varying site conditions in Taiwan. Owing to a suitable climate and environment for the bamboo growth, it is rich in bamboo resource both in species and area in Taiwan. In 2000, bamboo forests had ...

Linear storage. Linear storage for biomass is normally closed/covered to minimize the effects of additional moisture on the biomass during storage. A shuttle belt conveyor stacks the linear pile and moves back and forth above the pile to distribute biomass evenly. The material is reclaimed via screw reclaimers under the biomass pile.

Biomass accumulation is an important stand characteristic because it provides critical information for bamboo forest management. The purpose of this study was to predict aboveground biomass (AGB) for moso bamboo (*Phyllostachys pubescens*) plantations based on the diameter distribution model (DDM). The study was conducted on 24 stands, with intensive ...

Smart Storage Taiwan; Emerging Power Taiwan; 2024 Belgium Pavilion; 2024 Danish Pavilion; 2024 UK

Pavilion; 2024 Netherlands Pavilion; Net-Zero Taiwan ... forward-looking energy, power systems and storage, and ...

In Taiwan plantations of the Liukuei Experimental Forest managed by the Taiwan Forestry Research Institute, 2 stands aged 20 and 27 yr were selected to estimate the biomass and carbon storage in ...

Items Equations Species and Site 1.9092 1.1170 Volume  $V = (0.000033DBH \cdot H) - 0.0122$  China fir in central Taiwan Aboveground biomass  $ABG = 0.1502DBH^2.2273$  China fir in central Taiwan Aboveground carbon storage  $AGCST = 0.0681DBH^2.2521$  China fir in central Taiwan References Yen et al. [42] Yen et al. [42] Yen et al. [16] V is volume, DBH is the ...

This is regarded as a feasible approach for predicting the biomass yield of bamboo forests if a high correlation between DBH and biomass yield is observed in the samples. Moreover, this approach can be used to predict carbon storage based on the percent carbon content (PCC) within the biomass, that is, carbon storage = biomass  $\cdot$  PCC [12, 13].

Forests are important in the global carbon cycle and it is necessary to quickly and accurately measure forest volume to estimate forest aboveground biomass (AGB) and aboveground carbon storage (AGC). In this paper, we used data from the eighth forest resources inventory of China to establish two stand volume models based on stand density and forest ...

In addition, astonishing biomass accumulation and carbon storage was found during this period, and the aboveground biomass and carbon storage were predicted to be 3.44-17.33 and 1.58-8.04 kg ...

Semantic Scholar extracted view of "Estimating biomass production and carbon storage for a fast-growing makino bamboo (*Phyllostachys makinoi*) plant based on the diameter distribution model" by T. Yen et al. ... Taiwan red cypress, Japanese cedar, and China fir found that the PCC was higher in the foliage of all species, while the PCC in other ...

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Taiwan has an excellent reservoir for CO<sub>2</sub> storage located beneath the Chingshui Shale at a depth of about 1000 m where the porosity varies from 10 to 30 %. The saline formations with suitable cap rock could store a capacity of 10 billion tonnes of CO<sub>2</sub> in western Taiwan where most power plants and industries are localized ( Hsu and Lin, 2012 ).

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