



Topic: Major firewood plants of J&K

Introduction

Fuel is one of the great necessities of modern life. It is indispensable both in home and industries as a source of heat and power. Firewood is used since the time prehistoric the man discovered fire and still continue to be a major source of energy.

They are renewable if used judiciously may help in solving energy problem of developing countries .In recent centuries wood has given way to fossil fuels produced by extensive forests of the geological past.

Even though today much less wood is used than before, the total consumption of wood for fuel still exceeds its use for any other purpose. Nearly half of the total wood production of over two billion cubic metres is used for fuel. Farm and rural communities consume 85-90% of the total fuel wood.

Properties of wood

- Wood is an excellent fuel since 99% of the oven dried wood is combustible leaving behind about 1% of ash.
- Woods vary in their fuel values which depend mainly on the density and amount of moisture contents.
- The best fuel wood are the hard wood burning rather slowly and completely soft woods.
- The average calorific value of seasoned wood is around 4600 calories/Kg. Two Kg of the wood has the same heating value as one kg of good coal. However wood containing appreciable amount of combustible material like resins, oils and gums have higher calorific values but are poor firewood as they burn rapidly to produce intense heat for a short duration only.



Firewood crisis

- At least two billion people depend on wood as domestic fuel. Of these, 1.5 billion people face difficulty in obtaining their meagre supply of 3 Kg per day. Fuelwood requirement of India has gone up to 166 million tonnes per year, the availability has declined to about 28 million tonnes, resulting in a deficit of 138 million tonnes per year. At the same time India is also rapidly losing its forest cover at the rate of 1.3 m ha per year. For these reasons attention is being given to increase biomass production as rapidly as possible by vigorous forest schemes and planting fast growing high calorific value trees. Furthermore, increased attention is also given to the conversion of biomass by very efficient modern techniques. These include thermochemical and biological methods which give higher efficiency in conversion and reduce smoke – a byproduct of traditional direct burning method, causing health hazards especially to the eyes and lungs of women in rural areas. This is true to our UT also

Energy Plantation and Power Programme(EPP)

- Social Forestry (Raising of forests by communities of people for obtaining firewood ,fodder, minor timbers etc) on nonagricultural land can provide an alternate source of firewood. Energy plantation are advantageous since they are renewable, economical , ecologically safe and depend on available technology with minimum input.
- Under EPP Programme plantation of several quick growing species have been set up at various places in the country.
- Woody biomass from these plantations is not only used to meet local requirements of the domestic centre but also provide fuel for the gasifiers and power generation programmes.
- Thus, a great emphasis is being paid to energy plantation programmes on substandard soils . This would not only yeild fuel for power but also help in providing timbers ,restore fertility of the land ,halt desertification ,prevent erosion , reduce flooding and improve microclimate.
- Strips on eitherside of the roads ,canals and railway tracks can also be used for energy plantation .It would provide sufficiently a large amount of fuelwood without disturbing land for agriculture and industrial uses.

Selection of suitable species for energy plantation

For selecting suitable species for energy plantation so that it maximize efficiency and save you from trouble, the following points should be considered:

- ❑ The species should preferably be local as they are better adapted to climatic and soil conditions of the areas.
- ❑ The species should show rapid growth and high coppicing ability.
- ❑ Besides providing fuel ,the species should preferably produce additional products like fruits, seeds, fodder, green manure, medicines and tannins etc.
- ❑ The species should be hardy. Hard woods
- ❑ The species should have low requirement of water and fertilizer and must have ability to improve soil quality.
- ❑ The species selected should have a high calorific value of wood.

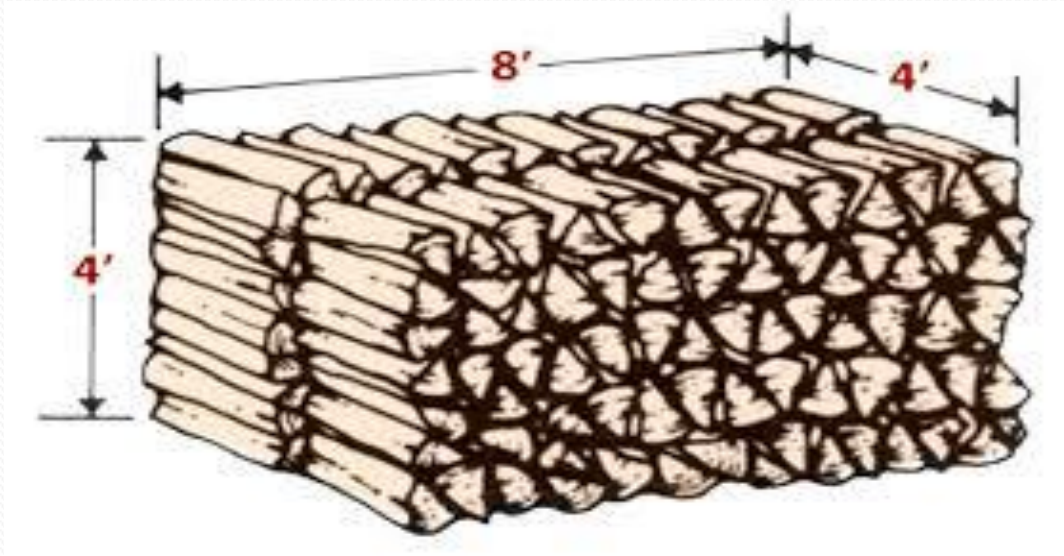
Some Promising firewood tree and shrubs of Jammu and Kashmir

Name	Family	Name	Family
Tree		Shrubs	
Acacia nilotica	Fabaceae	Dodonaea sps	Spindaceae
A.catechue	Fabaceae	Clerodendron inerme	verbenaceae
Albbizia lebbeck			
Bauhinia variegata	Fabaceae	Ipomea carnea	convolvulaceae
Bombax ceiba	Bombacaceae	Jatropha glandulifera	Euphorbia
Casuarina equisetifolia	Casuarinaceae	Lantana indica	Verbenaceae
Eucalyptus globulifera	Myrtaceae	Tecoma gracilis	Bignoniaceae
Ficus religiosa	Moraceae	Cassia obtusifolia	Fabaceae
F.glomerata	Moraceae	Adhatoda vesica	Acanthaceae
F .elastica	Moraceae		
F .bengalensis	Moraceae		
Grewia optiva	Tiliaceae		
Grevellia robusta	Tiliaceae		
Melia azedarach	Meliaceae		
Morus alba	Moraceae		
Moringa oleifera	Moringaceae		
Mangifera indica	Anacardiaceae		
Prosopis sps	Fabaceae		
Syzygium cumnii	Myrtaceae		
Toona ciliata	Meliaceae		

Note : These are only few sps I have mentioned here. There are number of such species e.g Zyziphus, Pine, deodar , Cassia ,S alix etc that are used by the local people in the mountaineous and plain areas of the J&K.

Common firewood terms

- To ensure you aren't lost when buying around for firewood there are three important terms to recognize:
- **Cord:** Unit of measurement, when purchasing firewood you purchase it by the cord, a cord is 8' long x 4' high x 4' deep.
- **Seasoned:** Dry wood.
- **Green:** Unseasoned wood that is still full of moisture.
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Manufactured Firewood

- Believe it or not, fuel for your fire doesn't have to be just plain old firewood. These days there are a few different types of manufactured fuel that can be used in a fire place to keep you warm in the winter:
- **Wood Bricks**
- **Wood Pellets/Pellet Fuel**

These are exactly what they sound like, bricks made of wood. In fact, they are made of kiln-dried woodchips/sawdust that has been compressed into a brick-like shape.

If you buy a high quality wood brick such as Rutland fire bricks, then they can actually burn more efficiently and produce more heat than cordwood.

Because they generally have a lower moisture amount than your typical firewood, they will also burn

cleaner and leave less ash – meaning cleaning your fireplace is much easier ●



Wood Pellets/Pellet Fuel

Wood pellets are very similar to wood bricks, except they are made into little pellets. They are designed to be burnt in special heaters called pellet stoves, but they can work in standard wood stoves if needed. They generally burn very quickly though, so I would only recommend using them in a standard wood stove as a last resort.

If however, you find that it is time to replace your old wood stove, you should seriously consider a pellet stove. They are super efficient and environmentally friendly. [You can learn more about pellet stoves in our guide here.](#)



Type of firewood to avoid

Following precautions should be taken while buying a firewood.

- **Non local wood** : If you find wood that has been cut and stored more than a few miles away, ditch it. Using firewood that has traveled too far is the **number one way to introduce invasive insects or diseases** to a new environment. Even one infected log can put an entire forest at risk.
- **Green wood** : Freshly cut wood has a high sap and moisture content and can be hard to light. Once it gets burning it will **smoke horribly and burn inefficiently**.
- **Treated or painted wood** : Older treated woods were often preserved with arsenic, when you burn this wood you are **releasing arsenic into the air**. This simple test can help you avoid burning inorganic arsenic. Additionally, painted woods release chemicals when burnt.
- **Driftwood** : Due to its salt content the chlorine can transform into carcinogens, which you don't want to expose yourself to. Although the salt may produce pretty flames it's best to keep this out of your fire.
- **Big wood**: Logs more than 5 inches in diameter must be recut before using. **Throwing large logs onto a fire is a waste of time**, be sure to split your logs for maximum efficiency. A great tool to help you get the job done is a
- Identifying what you need from your fire and the available species in your area are essential steps for choosing the best firewood for you.
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