

DCF (E)

16/3

Forest Fire

Tools & Equipments



Forest Research Institute

Indian Council of Forestry Research & Education

(An autonomous body of Ministry of Environment, Forest and Climate Change, Govt. of India)

P.O. : New Forest, Dehradun-248006

The vulnerability of the Indian forests to fire varies from place to place depending upon the type of vegetation and the climate. The coniferous forests in the Himalayan region especially chir (*Pinus roxburghii*) is very prone to fire. The other parts of the country dominated by deciduous forests are also damaged by fire. Vast tracts of forests are destroyed every year due to forest fires in India. Fire not only eliminates the regeneration of important tree species, but also causes serious damage to the site conditions, habitat of wildlife, loss of human life and thus, to the overall ecological structure of the forest.

Forest fire has now become the major problem in all types of forests. Mounting biotic pressure along the reserve forests is a major cause of concern. Indiscriminate fire by the people annually results in damage to large tracts of forests. Precautionary measures can help in conserving biodiversity up to an extent. But, when fire wrecks its wraths, it sweeps the ground by burning and takes away not only new recruits, but also seeds and sometimes the rootstock. Continuous and recurrent forest fire affects the equilibrium of an ecosystem and simultaneously damages the soil support system.

Present fire suppression methods are aimed primarily at establishing control lines to stop fire spread. The most obvious and practical approach in most situations is to prevent the fire by physical means. This is usually accomplished by removing flammable fuels in the post fires. Efficient and effective fire suppression, however, requires a great deal of equipment. The Silviculture Division of Forest Research Institute, Dehradun has developed easy to use hand tools for fighting of forest fires. These tools are very light in weight (2.5 kg) and can be packed in a canvas backpack. A person can easily carry tool bag as back pack and move in difficult terrains. Besides these, various other equipments are also available and very useful for control of forest fires.



Control Burning



Forest Fire control in chirpine forests

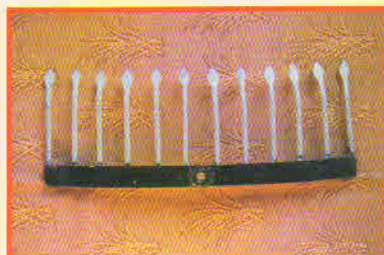
Hand Tool Kit for controlling forest fires

1. Fire Rakes (Kanghi): This tool is designed for raking and cutting of small bushes for construction and maintenance of forest fire lines.

There are three kinds of fire rakes made of stainless steel sheets are exhibited below as photographs with specifications:-

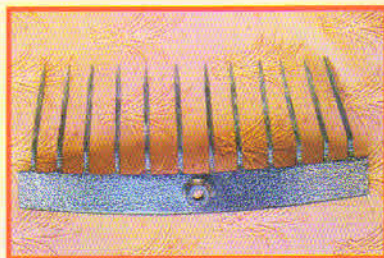
A. Arrow type rake: It is used to remove twigs and small branches

Specifications	
Thickness of angle iron	10 mm
Weight	700 gm
Number of rods per rake	12
Length of rake including angle iron	12 cm
Breadth of rake	42 cm
M S Rod Diameter	5 mm
Distance between two rods	3.5 cm



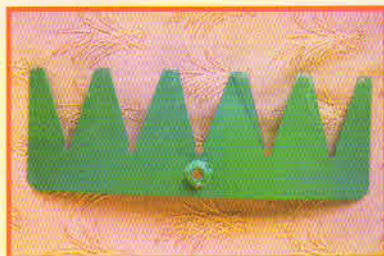
B. Nail Type Rake: It is used for raking light litter.

Specifications	
Thickness of angle iron	10 mm
Weight	700 gm
Number of rods	12
Length of rake including angle iron	12 cm
Breadth of rake	42 cm
M S Rod Diameter	5mm
Distance between two rods	3.5cm



C. Peg Tooth Type Rake: It is used for raking thick litter.

Specifications	
Gauge of sheet	3 mm
Weight	800 gm
Peg tooth angle	32-35°
Distance between two pegs	7.5cm



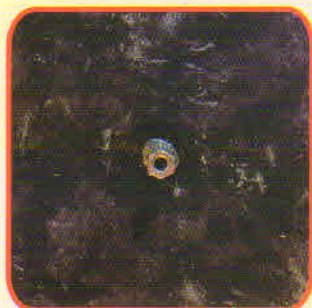
2. Fire Broom (Jhaapa): It is specially designed to beat the fire and control the ground fire. It is an innovative tool to combat surface fire. The handiest tool to beat the fire is made from spring steel wire reinforced with steel cup connection to club with adjustable rod. The purpose of developing this tool is to avoid loss of green branches (jhaapa) by the fire fighters.

Specifications	
Steel wire diameter	2mm
Weight	800 gm
Length of broom	45-50 cm
Breadth of broom	35 cm



3. Fire Beater (Fire Pressed): It is a new kind of tool developed to put off fire hidden under lumps. It will be of much use in post fire operations. It is effective and widely used in beating the fire in grass and hard inflammable material. It is made from steel or iron.

Specifications	
Length	24cm
Breadth	24cm
Thickness of steel	3mm
Weight	900 gm



4. Torch: It is a portable torch which can be used as head lamp by crew members during forest fire operations. It can also be mounted on the wrist of crew members. It is light weight and uses two small rechargeable batteries with LED lamp.



5. Adjustable Rod: This multiple use rod can be fitted with all types of above shown tools. The rod is very light in weight and is adjustable to various lengths. It is made up of high class conduit pipe with wooden grip. Adjustable length is of about 5-9 feet.

Specifications	
Diameter of Rod	2.5cm
Length of rod	1.5m
Weight	500 gm



6. Water Bottle: A light weight plastic bottle is essential element in the tool kit. A bottle that can carry about 2 lt. of water is very useful for crew members during fire fighting operation.

7. Pathal (Modified Sickle): It is designed to cut the small branches and twigs for clearing way for crew members.

Specifications	
Length of iron blade	17.50 cm
Length of wooden handle	33.50 cm
Length of iron handle support	26 cm
Weight	350 gm



8. Forest fire control tool kit Bag : This canvas bag is designed to keep various tools in such a way that the carrier does not feel discomfort. The inside of the bag is designed to evenly spread out of the weight of the tools.

Specifications	
Length of bag	2ft
Breadth of bag	1ft
Material Used	Metti Fabric/Canvas



For further details, please contact:

Director

Forest Research Institute, Dehradun

Contact details: 0135-222-4444(O), 0135-2755277(O)

e-mail: dir_fri@icfre.org

Head Silviculture Division

Forest Research Institute, Dehradun

Contact details: 0135-222-4322(O), 0135-2757579(O)

e-mail: head_silva@icfre.org

* During Forest Fire, please contact immediately the Van Panchayats, Forest Department's functionaries posted in the area or locally stationed NGO's involved in the forest related works.

* Help prevents Forest Fires.