



# FOREST FIRE PROTECTION

Plantation Guidelines No.18 (V.2) – Oct. 2005



JUST ONE forest fire can destroy the investment of many years in a few hours: hence fires must be taken very seriously as the NFA and private sector start establishing large-scale commercial plantations in Uganda. When it comes to fire prevention, the golden rule is: 'Be prepared'. With regard to fire control, the best advice is: 'Spot fires early: hit them fast and keep them small'. The key areas to focus on to make your forest safer are:

- Work with surrounding communities – not against them – and educate them on the dangers of forest fires.
- Identify risks well in advance and try to minimize them.
- Prepare firebreaks in advance of the driest periods.
- Purchase and maintain suitable fire fighting equipment.
- Ensure that any fires are spotted early and that there are people on standby at critical times.
- Train staff (including contractors) to ensure that they can fight fires efficiently and safely.
- Use the Fire Danger Index system to guide

levels of preparedness (see table below).

- Follow-up immediately after fires: ensure lessons are learned and take any disciplinary (or legal) action required.

This Guideline will expand on all these points. The advice is based on practices developed to a fine art in Southern Africa – where the plantation fire risk can be extremely high during the long, hot dry periods experienced there.

## Fire Prevention

It is much better to prevent fires starting in the first place than have to risk lives putting them out. Attention to a few issues before the fire season can greatly reduce the risk of fires and also make it easier to extinguish fires when they do start. A good place to start is to identify the risks and also to understand the main causes of forest fires.

### Identify Risks

Before the time of year approaches when fires are more likely (fire season) you need to know where your main fire risks are. These risks could be an activity that uses open fires (e.g. welding or brick

### FIRE DANGER INDEX SYSTEM

Fire Alert Stages	BLUE	GREEN	YELLOW	ORANGE	RED
Fire Danger Index	0-20	21-45	46-60	61-75	76-100
Fire Behavior	SAFE	MODERATE	DANGEROUS	VERY DANGEROUS	EXTREMELY DANGEROUS
Flame Length (m)	0-1	1-1.2	1.2-1.8	1.8-2.4	2.4+
Fire Control Guide	<p>Low fire hazard. Fires unlikely to start: control and mopping up easy.</p> <p>Controlled burning operations can normally be executed with a reasonable degree of safety.</p>	<p>Only light surface fires likely. Although controlled burning operations can be done without creating a fire hazard, care must be taken when burning on exposed, dry slopes. Keep a watch for unexpected wind speed and direction changes.</p>	<p>Direct attack needed if fires start: moderate mopping up needed.</p> <p>Extreme caution should be taken when controlled burning is carried out.</p>	<p>Spread of fires can be fast: control and mopping up difficult. No controlled burning of any nature should occur. Careful note should be taken of any sign of smoke – especially on the up-wind side of any plantation. Any fire that occurs should be attacked with the maximum force at hand.</p>	<p>Fires will be very hot and spread very fast. All personnel and equipment should be removed from field. Fire teams, labour and equipment are to be placed on full stand-by. At the first sign of smoke, every possible measure should be taken in order to bring the fire under control in the shortest possible time.</p>

making), communities (because of domestic fires and crop residue burning) and others.

To identify these risks and how they affect you, you also need to be aware of the prevailing wind during the fire season. A risk could be on the side of your property where the wind always blows away. This risk would be much lower on your priorities than the risk from where the wind blows directly into your property.

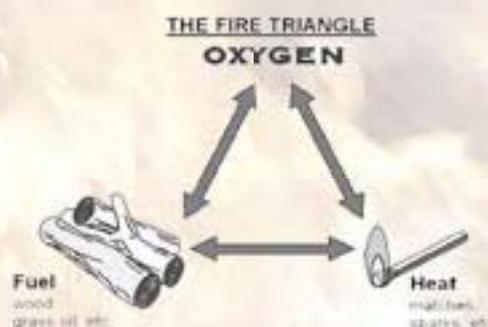
In order to identify risks you need to know a little about the theory of fires. The simplest method is to look at the fire triangle, (below). In the fire triangle there are three main elements. For a fire to be able to burn it needs all three of these elements: remove one and the fire cannot burn. For example when we apply water to a fire we remove the heat only and the fire is extinguished. When we make a break we remove the fuel and when we beat it we remove the air. In each case we are removing only one of the three elements but the fire is extinguished.

## Fire Danger Index

The Fire Danger Index (FDI) is a system whereby we measure the weather conditions in order to predict the chances of a fire occurring and the fire behavior once it has occurred. The FDI is a numerical figure, which places the risk in a category associated with a colour - either blue, green, yellow, orange or red

By knowing the FDI we can take counter measures according to the risk – such as placing temporary look-outs, getting the fire crew together, patrolling and canceling any movement away from the forest.

During the main fire seasons in particular, at each plantation forest station (or main office) there should be a large painted sign with an arrow indicating the colour code for the day. As you will read later on, the FDI should dictate when certain operations can be carried out in the forest safely – especially controlled burning of trash or firebreaks.



## Calculation of FDI

The FDI is normally calculated daily at 10h00 and 14h00. To calculate the FDI you need some basic weather information. A simple weather station at the main office will suffice and doesn't need to cost the earth. The information required is:

- Dry bulb temperature (°C).
- Relative humidity (RH) (%).
- Wind speed (miles per hour - mph).
- No. days since last rain (no.).
- Rainfall (mm).

For those fortunate enough to have access to the internet, see the FDI calculator at: [www.sawlog.ug](http://www.sawlog.ug) which quickly computes the FDI when you feed in the parameters listed above. For those without internet, the calculation is as follows (see annexures A, B and C):

1. The RH and dry bulb temp. are used with the alignment chart (Appendix A) to calculate the Burning Index.
2. The wind speed in mph (= kph x 0.625) is added to the Burning Index to give a Basic Rating.
3. The Basic Rating is multiplied by a Rainfall Correction Factor (a measure of fuel moisture - see Appendix B) to give the FDI.
4. Refer the FDI chart for the colour coding.

The more common causes of forest fires are as follows:

**Arson:** unhappy workers or neighbors can easily get back at you during the fires season – and it is difficult to catch people in the act of lighting the fire. Better to manage well – particularly by ensuring your workers are paid on time and any disputes with either workers or surrounding communities are resolved quickly and amicably.

**Self-inflicted:** Self inflicted fires can be broken into two main groups;

**1- Own burning:** a high percentage of fires are often as a result of 'controlled' burns getting out of hand. Through use of the Fire Danger Index, it is important to have (and enforce) rules regarding when burning is permitted on your land. Never burn in windy or very dry conditions and always have adequate staff and fire fighting equipment on hand when burning trash or firebreaks. All these points are explained later in the Guideline.

**2- Negligent use of domestic fires:** these being fires used to cook with or warm oneself with. There must be strict control and enforcement of rules pertaining to the use of fires for domestic use, especially when infield. This includes contractors, sub contractors, yourselves and own labour as well as anyone doing any other work on the plantation such as saw millers. Cooking and warming fires need to be contained in a designated safe area, a pit or shallow hole is ideal. They need to be supervised at all times and never left burning when leaving the site. They have to be extinguished completely and then preferably covered with soil.

People found to have caused a cooking or warming fire need to be severely disciplined. You can only do that if you have explained all the facts to them.

**Fires spreading from surrounding land:** This is very common and can start from farmers burning their crops or from an accidental fire. Foster good relations with neighboring communities. It is important that you try and educate these people as to the dangers, consequences and costs related to a forest fire: it is not only the owner of the trees that suffers but also the community at large because of loss of jobs, firewood and possibly other privileges that they have such as taking a short cut or drawing water. Part of this education should also be making them aware of the penalties in the 2003 Forest Act for those caught setting fires, even if their intention was not criminal (up to 5 years imprisonment).

Farmers frequently burn off vegetation on their property in the dry season prior to the rains. They do this to clear the land, remove old grass and encourage new grazing. As managers of nearby tree plantations, we need to promote ourselves as knowledgeable with regard to fires so that they come to us to ask our opinion and sometimes to ask for assistance.

Providing assistance should not be viewed as an avoidable cost. By helping to burn off some bush by providing labour and equipment and more importantly by controlling when that burning takes place, the risk of fires in our forests is greatly reduced. If nothing else try and get the co-operation of one's neighbors to at least warn you when they plan to burn so that counter measures can be taken.

Ensuring good external firebreaks will also help to reduce the likelihood of fires spreading from surrounding land. During dangerous times, do not hesitate to extinguish fires that threaten your boundary.

**Honey-hunters:** People collecting honey from hives within your property often will use a smoky rag to placate the bees. Once they have gathered the honey, they often leave the rag smoldering on the ground and when a wind comes along, this can easily lead to a fire starting. Try and encourage the people you know might collect honey, to do so under the supervision of your staff.

**Others:** Cigarettes thrown from car windows have been known to start fires. Think of placing highly visible warning signs on any main roads passing through your property to make people think before discarding the cigarettes (or use their ash-trays!). Also ensure your firebreaks are well prepared along public thoroughfares.

Lightning can also be a cause of forest fires though there is not too much you can do to stop this!

### **Compartment Size**

It is strongly recommended that when you are planning your plantation development, you do not have single blocks or compartments bigger than 30ha without a road or firebreak around.

### **Species Susceptibility**

Not all tree species are equally susceptible to fires. *Pinus patula* is very sensitive to fires as it has a thin bark – even a light fire may kill this species. *Pinus caribaea* on the other hand is reasonably fire resistant: this does not mean that it will always survive fires, as in times of drought or in a very hot fire it will also suffer serious fire damage.

*Eucalyptus* spp. are fairly susceptible to fires but have the advantage of usually coppicing afterwards, even if the above ground parts of the trees are killed.

### **Fire Season Preparedness**

Fires can (and do) occur at any time of the year but the risk is clearly greatest during extended hot and dry periods over the year. In most parts of Uganda, this usually means the periods in between the two rainy seasons – around July/

August and January/February. For your particular area, weather records should be consulted (combined with local knowledge) to allow you to identify the dangerous periods of the year. The four key factors that affect fires are rainfall, winds, terrain and the fuel load: these will now be discussed.

### Wind

Wind helps fires spread rapidly and also provides oxygen for the fire to burn: obviously the stronger the wind the faster and bigger the fire will be. By knowing where the wind blows from at any time of year helps us to plan for the fire season. Our defenses against fire need to be stronger where the wind blows into our trees.

### Rainfall

Rainfall - or more importantly in this case the lack of rainfall - increases the risk of fire. When the grass and other flammable debris are dry it burns much easier. A discarded cigarette may cause no damage in the wet season but during the dry season it may instantly start a fire that grows and threatens property and life.

### Terrain

Terrain is the shape of the land. Other than wind, slope is the biggest cause for a fire to spread. Fire runs uphill very quickly and burns slower downhill (wind can sometimes, however, help fire move faster down slope). Fire risks at the bottom of the hill therefore pose a higher threat than those at the top of a hill. Steep terrain is also less accessible than a flat area and this makes fighting a fire much more difficult.

### Fuel Load

Areas with a lot of inflammable material are obviously a high risk in terms of possible uncontrolled fires. Thus plantations that have not been weeded well that have tall grasses throughout are very susceptible to fires (and when fires start are very difficult to put out). Thus good weeding helps greatly to reduce fire risk.

### Firebreaks

Firebreaks are classified as external or internal. External firebreaks are belts or areas around the trees or property that are not flammable. These could be man-made such as a strip where all the vegetation has been burnt or scraped off, or natural areas such as a lake or natural forest.

Note that roads are often used as firebreaks but are a risk because people use them: thus roads should not be considered as a firebreak by themselves. External firebreaks should be wide enough to stop a normal fire by themselves. The width depends on the risk but a minimum of 10 metres clear of vegetation is a good guideline.

Internal firebreaks are firebreaks within the property or forest. These are there to provide you with a staging point from which to fight the fire and to reduce the area burnt. Internal firebreaks are narrower than the external breaks because they are not usually designed to stop the fire themselves: you have to get there and put the fire out. The number of internal firebreaks and their width again depends on the risk but as a guideline, a minimum of 5m is recommended.

### Preparing Firebreaks

Firebreaks should be prepared in advance of the fire season. This means planning carefully according to the climate in your location and either manually clearing or burning (in a controlled manner) the firebreaks. Manual clearing is expensive and not recommended on steep slopes as it will lead to erosion as the same firebreak will generally be cleared every year. In areas where access is difficult, however, manual clearing is



often the only way: hoes or rakes can be used to clear vegetation down to the soil.

Controlled burning is usually the most cost-effective method of preparing firebreaks. It is best carried out when the surrounding vegetation is still green (and thus not highly flammable).

A useful technique is to spray a 1.0m strip (called a fire-trace) with Glyphosate on either side of the proposed firebreak when the firebreak (and surrounding vegetation) is still green. As soon as the sprayed strips have died following the spraying, the strips can then be burnt off relatively safely.

Once the middle piece of vegetation has then dried naturally, the whole firebreak can then be burnt off – the clean fire-traces on either side of the firebreak making it safer to burn. Whenever controlled burning is taking place, ensure that there are staff and equipment on site in case conditions change or the fire jumps to another area. Also remember that there should strictly be no burning when conditions are dangerous (Orange or Red FDI).

In areas where the vegetation does not dry off naturally the following technique can be used. Slash the entire break, ensuring that the slashing is as close to the ground as possible, thereby removing the maximum amount of vegetation. Let this slashed vegetation dry and then stack it in the middle of the firebreak. Burn this when it is safe to do so and before the fire season.

### **Roads**

Roads are often used as internal breaks as long as they are kept clear of vegetation and the road verges kept clean. Strategic roads should be checked and maintained so that vehicles and labour can move quickly along them at night and not fall into a pothole or hit a boulder.

### **Natural breaks**

Natural breaks are existing features that are not flammable. Examples are lakes, moist high forests and rocky areas where no vegetation grows. Natural breaks, however, are usually not suitable for driving or walking along. It is also important to mention that some natural features – such as open areas and bush lands - can be a fire risk. Some swamp vegetation becomes very inflammable when dry.

### **Personnel: Fire standby crews**

During fire season you need to be able to react to a fire and get people there quickly to fight it. The sooner you can start fighting it the smaller it will be and the easier it will be to put out, resulting in reduced damage to your forest.

In order to react quickly we need to have people available to call upon. These can be people who remain on your property so they are all in one place or villagers who can be trained to respond to a siren and gather ready to be collected or dispatched. It is important to identify the people you will be using in order to train them so that they are effective when fighting fires.

In case of a larger fire you may call upon extra people who are not trained. This is fine, as you would usually use them for manual work such as opening up extra fire lines or carting water. The core fire team, however, should be at the fire face and know what they are doing.

### **Fire duties**

A fire crew will always need to be managed, equipment needs to be issued and decisions made at the fire. Also at the end the final call to say that the fire is out cannot be made by the labour that just want to go home to sleep. For this reason there must always be someone trained, responsible and available to take charge at a fire (the Fire Boss).

The Fire Boss needs to remain on station, stay sober and be within contact at all times during the fire season. This is a lot to ask one person as it is stressful work and people need time off. Hence, this responsibility is normally divided among several people, who each would be on duty for a period of time, normally a week. This person may call the others for assistance but that person remains responsible while it is their duty period. This fire duty needs to be formalized so that everyone knows whom to call upon if there is a problem.

### **Volunteer labour**

Extra labour will be required to fight fires so it is important to have equipment for them and to have clear instructions on what to do and where to go. They will however want some reward for their effort. This is a very touchy point because if you pay people for fighting fires, this can quickly develop into a situation where fires are set in order

to be called and paid. Obviously every situation is different; a suggestion is to have something in place where the labour or communities benefit when there are no fires.

Even your fire crews are not above this temptation so generally it is advisable to pay them whether or not there are fires. They would rather stay in bed and get some money than spend the night fighting fires to get it. A spin off is that they may



even dissuade others from being careless with fire. A last thing on payment is to decide beforehand on what and how it is to be done. You do not want to sit and negotiate when the fire is burning. Give the Fire Boss authority to agree on getting extra people in so that he is not trying to get permission while the fire is burning.

### **Spotting fires**

Spotting a fire early enables you put measures into place to extinguish that fire or if it is outside to prevent it from entering. The smaller the fire is when you start fighting it, the easier it is to control: once a fire gets to a certain size you cannot even fight it but have to wait until it burns itself out.

### **Fire lookouts**

A fire lookout can be temporary or permanent. Temporary lookouts are measures placed for a limited time to keep a look out for fires. This could be placing someone on top of a hill when the conditions are favorable for a fire starting and spreading (e.g. in Red or Orange FDI periods). It is important though for this person to have the means to call and report a suspected fire (mobile phone or radio communication).

Permanent fire lookouts (usually called fire towers) are structures built where they have a good sight over the forest. During fire season they can be permanently manned or just when conditions are bad. Again the operators in the fire towers need to have communications in order to report any potential fires.

### **Mobile patrols**

Mobile patrols are fire lookouts on the move. It could be a vehicle or people patrolling a high-risk boundary or moving between vantage points covering different parts of your property. They need to be in communication as the time lost getting to a point where they can report a problem can mean the difference between a small fire causing no damage or a large one destroying all your trees.

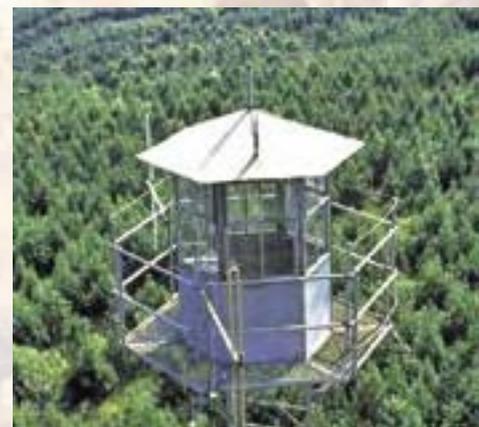
### **Outside people**

There are always people around, either on your property such as contractors or people passing through or off your property living and working on your boundaries. These people are very likely to spot a fire on your land much sooner than you or one of your staff does.

You need to develop a system whereby people know where they can go (or call) to report a fire (or any other problem). You could develop an arrangement with a local shopkeeper or someone with a phone to act as a messenger for you. The crucial thing is for the community to know what they should do if they see a problem.

### **Mobilizing people**

As mentioned earlier once a threat has been identified labour needs to be mobilized and fighting the fire started as soon as possible. There are several systems to send out the alarm from sirens to drums. The important thing is for the people to recognize that it is an alarm and not just another sound, so don't use drums if the local choir use the same drums and play the same beat as you do!





Use something unique and make sure that the people can recognize it and know what to do when they hear it.

### Equipment

When a fire is spotted and people are off to fight it they need to have the correct equipment in order to do so. So equipment is needed on site as quickly as possible.

Water is an important part of that equipment as it is very effective in suppressing fire.

Any serious plantation development should have some means of transporting water to fires during the fire season. It can be a tractor-drawn water-bowser or a dedicated fire engine (as pictured above). Outside of the fire season, the tractors can of course be used for other purposes: even the fire engine is very useful for providing water for planting and for spraying out of fire season.

A tractor-drawn fire bowser or a fire engine require a water pump and hoses. These are normally petrol engines mounted on the trailer, which powers a pump and forces water down a hose out on to the fire.



### Labour

As mentioned several times earlier you need to have labour at the fire fighting it as soon after it starts as possible. This means getting them there. Having them walk to the fire is not ideal, it takes time and several will get "lost" on the way. You need to have some vehicle to transport them quickly and safely to the fire. This labour needs to be familiar with the equipment and with basic fire fighting methods.

### Tools

**Rake Hoes** – This is a versatile tool that can be used to scrape the ground clean as well as to rake up needles or other loose debris.



**Beaters** – usually made from old conveyor – belt cut into strips and firmly attached to a long handle. Beaters are used to beat and suppress the fire directly: useful in grasses and low fires.

**Knapsacks** – This is a water-filled knapsack with a double action water pump (i.e. it pumps water both with the outward and inward stroke) used to squirt water accurately and without wastage.

### Drinking water

You must always ensure that there is drinking water available, and a system of getting it to the people to drink. Fighting a fire is hot, hard work and people can dehydrate very quickly causing you distractions and extra problems, also putting that person in additional risk of being burnt.

## Fire Fighting

### Types of fire

Fires are categorized by where they burn, along the ground, (ground fires), just above the surface, (surface fires), or in the crowns of the trees, (crown



### Basic fire fighting tactics

Because any fire that is not very small becomes difficult to get near, (even your cooking fire at home gets too hot sometimes), we have to fight most fires indirectly. That is placing fire lines alongside and ahead of them. By doing this we deprive the fire of fuel to burn and it dies back.



Fire is also very dangerous and putting someone in front of a fire that is moving at any speed is irresponsible. Fire is also very unpredictable: it flares up and dies back; it changes direction and jumps so we have to know where the labour are at all times and make sure you don't get them trapped or cut off. The consequences can be fatal.

fires). The closer it is to the ground the less difficult it is to fight.

### First attack plans

As soon as you get to the fire you need to make your initial plans. Often people jump off the truck and race to the fire only to be called back and placed where you want them.

Spend a few moments deciding what you plan to do and then deploy your labour. A planned and coordinated attack is far more effective than everyone doing their own thing. In fact the latter is not only ineffective but puts people's lives in danger.

### Extended attack plans

Once you have people fighting the fire you will have more time to assess what is going on. You have to look at what the fire is doing, how fast is it moving, how furiously is it burning, what is it burning as well as where is it going.

In most cases we can only fight ahead of a fire so we have to plan ahead. Once you have a better plan you can assess what the labour are doing, don't be afraid to change your plan, you will do so often as conditions change.

So you need to act tactically and working from the back and sides, slowly pinching the fire depriving it of fuel and slowly making it smaller and smaller before putting it out.

It sounds much easier than it is and it takes years to become proficient at fighting forest fires but one never becomes a master. The number one rule though is to always make sure that everyone has somewhere to escape to and when the fire gets too strong to pull out and fall back to a safer area where you can fight the fire. The faster the fire is moving the further back you have to go. If what you are doing does not have any effect on the fire, stop. You will be wasting energy: rethink your plan.

### Back-firing:

Back-firing is a technique of fighting fire with fire and can be an effective way of stopping an approaching fire-front. It is also a very dangerous technique and unless carried out by an experienced person, can create more problems than you had at the start. Back-firing should only be done with the permission of the Fire Boss. It should only be carried out where you have adequate support (people plus water and tools) in case the back-firing itself gets out of control.

## Mopping up

Once we have put out the flames we are left with a burnt area full of smoldering debris. This debris could quite easily start a new fire and if left unattended, almost certainly will. Mopping up therefore is to render potential threats harmless.

You have to open fire lines around the fire, being careful not to move embers into the unburnt areas. You have to extinguish all embers that may throw sparks into the unburnt area. When mopping up it is important to look at the whole fire and



not only the front. This is because the wind may change direction and a different part of the fire becomes the threat. Only once all of this is done



can you think of leaving the fire and sending the fire crew away. However there is a need to post guards at the site until no embers remain.

## Guarding

The fire area needs to be guarded until no threat remains. Guards are not normally left alone but in pairs and in the case of a large fire several pairs can be left on site. These guards need to

be able to call for help in case the fire starts up again or in case of any other problems. They need to have food and water and some tools to extinguish small flare-ups. Where it is cold they need suitable clothing.

## Safety

Fire is extremely dangerous in itself but additional hazards are added by running around in the dark or up and down slopes carrying equipment. So strict discipline needs to be maintained. People must not run, they must not go off without permission, they must act responsibly, be alert to all the hazards and they must always know what to do if the fire turns, speeds up or flares up. After a fire everyone must be accounted for and any injuries attended to no matter how small.

## Fire fighting records

In order to learn from your experiences you need to know what was done. The Fire Boss needs to keep notes of everything that happened at the fire:

- the time it was reported;
- the time people got there;
- any changes in weather or

the fire;

- when extra people came;
- when it was brought under control;
- when he started mopping up;
- when he sent people back;
- when he posted guards and left himself;
- things that broke or what went wrong;
- things that worked well and which people excelled.

Many things happen during a fire and it is very busy. This is why the Fire Boss must make notes, to prevent him from forgetting what happened. The Fire Boss will learn from the notes he has made. Also after a fire all the equipment needs to be checked and repaired if necessary. The next fire may be just around the corner.

## Fire reports and post mortem

A fire report needs to be completed. This forms a basis where one can see trends in the fires, time of year and places where they occur which will help you in the future. If you see that many fires occur around a certain community you can try and discover why. Another important aspect

that needs to be ascertained is the cause of the fire. As soon as possible after the fire or even during mopping up this needs to be discovered. Again it will help in preventing future fires. It is also vitally important to get all the key people who were involved during the fire onto the site and review all the decisions made and talk about what could have been done.



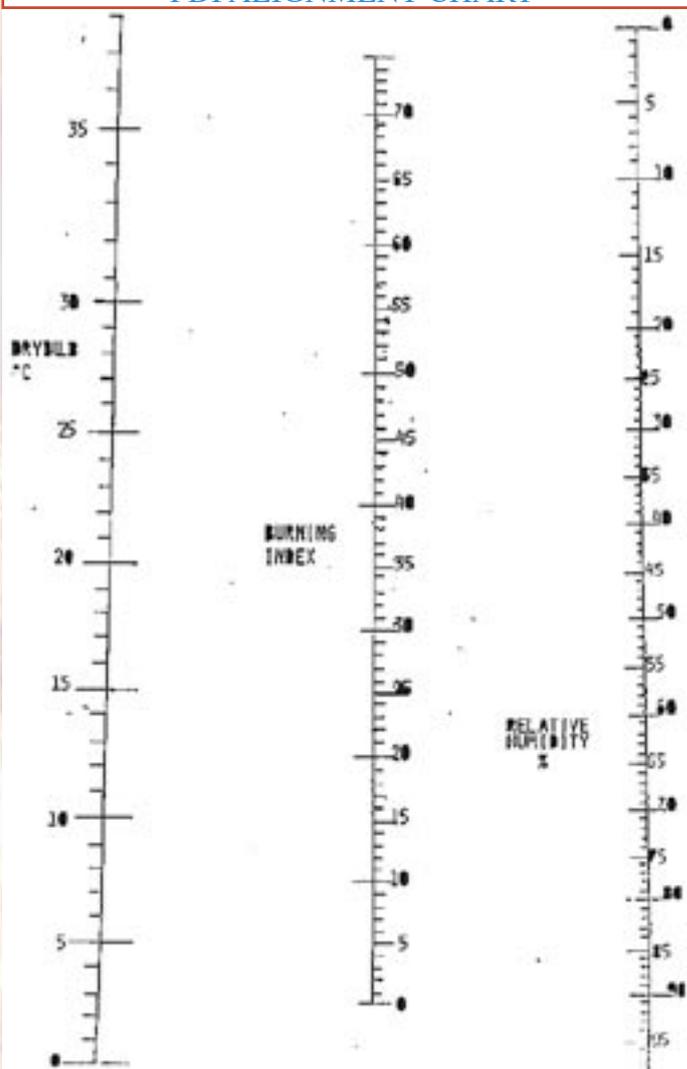
Fire is dangerous and destructive; we therefore cannot play around with it. If someone does something negligently or does not follow instructions they need to be disciplined. This is to stop them from doing it again as well as to prevent others from doing the same. Be fair but firm.

### Training

It is essential to ensure that your fire-crews (or the people that will be expected to fight any fires on your property) are adequately trained before the onset of the fire season. Before each fire season ensure your fire equipment is in good working order (and if not buy some that is!). Then spend time teaching people the techniques for fighting fires safely and effectively.

Fires are one of the greatest threats your forest faces over its lifetime. Years of hard work and a major investment can be destroyed in a very short time. Therefore by not taking precautions, putting in firebreaks, purchasing and maintaining equipment and training and organizing your fire fighting force, you jeopardize all your efforts.

### ANNEX A FDI ALIGNMENT CHART



**ANNEX B**  
**FDI RAINFALL CORRECTION FACTOR**

Rainfall	Number of Days Since Rain Last Fell											
	1	2	3	4	5	6	7-8	9-10	11-12	13-15	16-20	21+
mm												
0.1 - 2.6	.7	.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2.7 – 5.2	.6	.8	.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
5.3 – 7.6	.5	.7	.9	.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
7.7 – 10.2	.4	.6	.8	.9	.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0
10.3 – 12.8	.4	.6	.7	.8	.9	.9	1.0	1.0	1.0	1.0	1.0	1.0
12.9 – 15.3	.3	.5	.7	.8	.8	.9	1.0	1.0	1.0	1.0	1.0	1.0
15.4 – 20.5	.2	.5	.6	.7	.8	.8	.9	1.0	1.0	1.0	1.0	1.0
20.6 – 25.5	.2	.4	.5	.7	.7	.8	.9	1.0	1.0	1.0	1.0	1.0
25.6 – 38.4	.1	.3	.4	.6	.6	.7	.8	.9	1.0	1.0	1.0	1.0
38.5 – 51.1		.2	.4	.5	.5	.6	.7	.8	.9	1.0	1.0	1.0
51.2 – 63.8		.2	.3	.4	.5	.6	.7	.7	.8	.9	1.0	1.0
63.9 – 76.5		.1	.2	.3	.4	.5	.6	.7	.8	.8	.9	1.0
76.6 and over			.1	.2	.4	.5	.6	.6	.7	.8	.9	1.0

**ANNEX C**  
**FIRE DANGER INDEX INPUT SHEET**

		Temperature °c				
			}			
				=		Burning Index
		Relative Humidity %				
		Burning Index				
+		Wind speed Mph (Kph x 0.625)				
x		Rainfall Correction Factor				
=		Fire Danger Index				