

## Minutes ACFIRE Fall 2007 Meeting

Edmonton, October 18, 2007

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### Attendees:

John Mann	FPInnovations	Wally Born	Alberta SRD
Marv Clark	FPInnovations	Ray Ault	FPInnovations
Ed Proteau	FPInnovations	Rich Just	Thermo Gel
Greg Baxter	FPInnovations	Colin Cameron	Astaris
Dave Schroeder	FPInnovations	Candace Galbraith	Astaris
Wally McCulloch	FPInnovations	Kim Chell	Astaris
Kris Johnson	Government of NWT	Bill DeGroot	Canadian Forest Service
Jim Thomasson	FPInnovations	Cordy Tymstra	Alberta SRD
Rex Hsieh	FPInnovations	Rich Just	Thermo-Gel
Rory Thompson	FPInnovations	Rob Hyslop	Thermo-Gel
Mark Ackerman	U of Alberta	Mike Wotton	Canadian Forest Service
Gary Dakin	Consultant	Rob McAlpine	Ontario MNR
Lou Foley	Vanderwell	Lorne Harris	Government of Yukon
Jeff Berry	BCMOFR – Forest Service	Don Podlubny	Foothills Model Forest
David Torvi	U of Saskatchewan	Brian Kostiuik	CNR
Peter Willete	CNR	Larry Pahl	Conair
Brent Schleppe	Alberta SRD	Ted Szabo	Alta. Advanced E & T
Colleen Mooney	FPInnovations	Doug Higgins	Wildfire Group
Trinity Turnbow	Thermo-gel	Mike Guterson	Wildfire Group
Bruce MacGregor	MacGregor Forestry Ltd		

### Introduction – Marv Clark

Introductions made and the days agenda presented; project proposals and voting process reviewed.

### Update on FPInnovations – John Mann

Objective – to discuss FPInnovations place in Canada’s research institutes. FPInnovations is a merger of equals: Paprican, Forintek, Feric and the Canadian Wood Fibre Centre. Bringing four organisations into one cohesive organisation.

Step 1: Strategic Plan and Change Management. Bring into operational plan. There are four key strategies for change:

- Innovative Programs
- Continuous improvement
- Enable innovation and technology
- Enhance member service

This includes development of Matrix organisations and Strategic branding.

Structure of new Organisation:

- Pulp and Paper
- Wood Products
- Forest Management

Goal is to improve knowledge management.

Change Management – Definition: a structured approach to go from current to new structure. There are four building blocks for this: understanding, desire, knowledge and ability.

A schedule has been developed to accomplish change.

Next Step – business process, management system; organise structure and skill base and align these with goals.

## **Project Updates by program area**

### **1. Saskatchewan Aerial Ignition Helitorch – Gary Dakin**

FPInnovations was asked to take over the design of a prototype and develop proof of concept for an aerial ignition helitorch for Saskatchewan (SERM). The key to this model is the use of the Flash 21 A and B gelling agents and the use of an ‘in-line’ mixing system was required. Vancouver is now putting together design drawings of the system.

Q) What is the fuel capacity? Why not just bolt a 45 gallon tank on?

A) Amount of fuel carried is very important – the more the better.

Q) How long do batteries last?

A) May have to change a few times/day. But these would be quick change and can be done during refuelling.

Comment – should put together a focus group of ignition specialists to follow up on design and operations.

### **2. Mulcher/Processor Demonstration – Marv Clark**

A day-long mulcher/processor demonstration took place near Grande Prairie hosted by Risley Equipment with the objective of comparing productivity between mulchers/processors and dozers (where data comes from other studies). Two types of mulchers were used (shallow and deep mulchers) and a processor. Equipment was used alone and in combination to demonstrate productivity, ignition potential and rehabilitation costs. Video was taken to produce a training video.

Six treatments were tested and the trials were completed. Ignition testing took place and the video collected. Data analysis is still to be completed as well as the report.

### **3. Helicopterable Mulcher – Rory Thompson**

Objective of this research is to determine the effectiveness of equipment that is light enough to be flown into remote fires to build fireline. This equipment is to assist and/or replace hand-crews

The RC-100 rubber tracked mulcher was viewed. Two helicopters used in AB are able to carry this – the S-64 Airplane and the Boeing 234. This is exploratory research.

### **4. Linear Corridor Research – Greg Baxter**

Reviewed four projects that were worked on this spring and summer.

a) **Mowing trials** – this project was completed following four years and 10 sets of burns. Final results from the data shows that fire intensity decreases by one-half for the following treatments:

Standing grass	3006 kW/m (indirect attack)
Spring mow	1510 kW/m (indirect attack)
Fall mow	732 kW/m (direct attack)

Report is in the Internal review stage.

**b) Species flammability**

Two years of work has been completed in Vegreville on this project. Six Ignition tests have taken place over two seasons (spring, summer and fall testing) and one large plot fire has occurred. One more season of work is planned and then plans are to take one or two species into the field for testing on a linear corridor. Work is also taking place talking to biologists and costs of planting are being collected.

Project updates are available on our website at <http://fire.feric.ca>

**c) Fast-attack kit for data collection on linear corridor fires**

Feric researchers are unable to attend all wildfire involving linear corridors to collect basic fire behaviour data. Feric has put together a powerpoint presentation on this subject which is available on our website for those who would like to assist in data collection.

This presentation can be found at <http://fire.feric.ca>

**d) BC Transmission Corporation (BCTC) pile burning**

BCTC approached FPInnovations to put together a directed research project to determine what size of pile can be burned safely under their transmission lines. BCTC have many km's of line in remote and rough terrain that are not accessible for mechanical debris treatment.

FPInnovations designed a project to collect temperature data from burning piles and collected data in the NWT this summer. Eight piles of various heights were burned (0.7 m to 2.0 m) and temperature data was collected from 3 to 8 m above the pile.

Results were based on pile height and windspeed. At this time, 2.0 m high piles are too big to burn under lines 10 m above the ground (based on the requirement that temperatures 2 m below the line must be < 90°C).

The internal report is currently being reviewed.

**5. CN Rail research program– Jim Thomasson**

Project involves looking at three methods to protect bridge structures from wildfire. Protecting the structures from direct radiation, using less flammable species around the bridge structures and the use of detection cameras (which includes visible area, support to towers and communications).

**6. Community Protection – Dave Schroeder**

Two FireSmart test burns were completed in the NWT this summer in extreme conditions. Video was shown of the fires and through discussion it was decided to try and put these videos on the website for use at FireSmart meetings or community meetings for education.

There is still potential in the NWT for a number of FireSmart trials to take place.

**7. Mulcher Productivity – Dave Schroeder**

A mulcher productivity trial took place at Dutch Creek which is located just north of the Crowsnest Pass. Four types of mulchers were used to mulch debris piles left by harvesting operations. The piles were measured for area before and following the mulching treatment. Two large mulchers worked in new cutblocks and the two smaller ones were used where regeneration was occurring so as to walk between the stems. The debris 'alteration' resulted in an increase in area of material of 13%. The site is to be re-visited to view the impact on the regeneration and how the mulch may physically change.

Results – large debris footprint increased when mulched into small particles. Excavator is the best option (less travel while mulching due to the long reach). Report will be on website soon.

#### **8. Archer Lake Pine beetle Project – Colleen Mooney**

A mountain pine beetle (MPB) study has been established at Archer Lake, north of Fort McMurray. Six plots have been established where half the plot has been girdled to simulate MPB attack and the other half is the control side of the plot. The objective is to burn the plots at the same time to determine the influence that dead/dying trees have on fire behaviour. These plots will be burned at various stages of death (red stage, grey stage or following needle fall).

The site was visited in August to test the moisture content of the needles, but not enough time had elapsed to show a significant difference thus burning did not take place. The site will be re-visited in the spring to decide on a burning schedule.

This project may expand into the Alberta foothills in the Nordegg area where future prescribed burns are planned.

#### **9. CN Camera - Chisholm – Jim Thomasson**

FPInnovations, CN and the SRD worked together to install a portable camera this summer along in a screened area near Chisholm. The portable tower was borrowed from Saskatchewan (SERM) and their people came out to help set up the communications. The camera system did detect smoke created by the smoke generator that was not otherwise visible from the lookout tower.

Q) Is the portable tower reliable?

A) Yes, it was successfully erected, it transferred data and taken down without problems.

#### **10. Automated Smoke Detection – Ray Ault**

This is not a new concept, detecting smoke with cameras. It has been around since 1954 (as seen by the cover of Popular Mechanics). Feric began work in 2002 by investigating potential technology for this project. Ray gave a summary of the projects history and results to date.

In 2003 the workshop was held and it was learned that two other countries are already using camera technology (Germany and South Africa). Two sites were selected for trials, Edson and Prince Albert. The system used a camera operator at this time.

In 2004 the Forestwatch System (South Africa) was selected for further trials. Four cameras were mounted on 2 towers and used satellite communication. It was found this system was disruptive in the local forest offices.

In 2005 the development of a five-year plan was completed. The detection system now had many layers in the GIS part of the program. The number of false alarms was high and because of this most smokes were found during manual operation.

During 2006 another workshop was held and from this it was found that some things were not practical – such as unmanned flight, etc. Five towers were in operation (10 cameras) and communication was done using FireNet, SuperNet, satellite, and microwave. Winter operations were also tested.

A new panorama display was tested in 2007. Four towers were used and the number of false alarms was still high. The operator found most smokes in the area (90%) using manual detection. System problems remain an issue.

Q) Do you see a loss of weather stations if system incorporated?

A) The weather can be collected with remote stations using the communications infrastructure of the detection system.

Q) What is the cost compared with costs in South Africa (SA)?

A) SA uses a much denser network of cameras over a smaller area – too dense for use in Alberta.

Comment – someone needs to be looking at the new technologies and assessing the performance, if the product is not ready better to learn through research than through an implementation program.

## 11. Aviation Update – *Wally McCulloch*

Four project updates were presented: 1. Contract with BC for Thermal Gel evaluation; 2. weather briefings; 3. Strategic Air Cooperation (SAC); and Quality Products List (QPL).

- a) **ThermoGel** – three seasons have been completed in this directed research project. Aircraft included the Martin Mars (f/w) and a helicopter (r/w). Tests completed in 2006/07 on these two aircraft. The gel was found to be effective and is another tool for the fire managers.
- b) **Weather briefings** – the objective of this project was to assess the need for new briefings to better assist fire operations. Briefings in AB and BC were attended with more data still to be collected.
- c) **Strategic Air Cooperation** – this project is interested in looking at fires within 100km of the AB/BC border where the potential is there for the sharing of air support to reduce travel times and thus the costs of fighting fire. Data collected from 2003-2007 and includes at least three fires in 2007.
- d) **Qualified Products List** – this project is not an official project, but is being monitored by FPInnovations to keep up on innovations. Also opportunities to use local labs such as Paprican to pre-screen products before they are sent to the USFS lab in Missoula Montana.
- e) **Flash 21** – Alberta SRD approached Feric to investigate ignition agents that do not ‘flash’ following an incident burning pine beetle trees. Feric knew the Product Flash 21 may be a solution and so they investigated its use. The product mixes at 1:200 and was tested with unleaded gas and diesel. It was tested in a range of temperatures. There was NO flashing of the fuel. It could be ignited by a match after which it burned slowly.

Observations – most effective was mixing regular unleaded gas with Flash 21. It was easy to mix, stored well, ignites easily and does not flash. The cost was about \$1.10/litre.

Q) What was the minimum flame temperature used to light it?

A) A match would light it.

## 12. Infrared (IR) Scanning – *Ray Ault*

Performed two trials this spring over our grid in Hinton with two helicopter companies. Both companies performed well. Found the targets, landed the r/w and printed off their map and handed it off to us.

Comment – investigate other ways to qualify a company.

## Research Proposals

The project with the lowest score is the project with the highest priority. Budget resources will be allocated for the 2008 season in March. Funding will dictate how far down the list the fire group can get on the project priorities.

Project	High	Med	Low	Score
Support for renewal of land use permit (2009-1014) for the Fort Providence Community Fire Protection Research site	14	0	0	1.00
Remote input device for real time fire behaviour modeling	11	0	0	1.00
Safety zones	14	1	0	1.07
Identify various personal locating devices	10	4	0	1.29
Use of high altitude scanning to detect hold over fires	8	5	0	1.38
Drought code: Calculation & calibration	7	6	0	1.46
Fuel break effectiveness	7	6	2	1.67
Remote start pump evaluation for the urban interface	5	10	0	1.67
"Focused" prescribed fire prescriptions	4	10	0	1.71
Using local weather sensing to improve operating windows	3	11	1	1.87
Explore better technologies to survey green-up (satellites)	3	8	2	1.92
Feasibility study to construct a burn lab for fire training	1	11	1	2.00
Fuel management guidelines for pipeline protection	2	10	3	2.07
310 Public reporting by cell phone analysis	0	12	1	2.08
Training video for lookouts	0	7	5	2.42
Evaluation of in-line fire hose foam cartridge system	1	1	12	2.79

### Spring Meeting Date:

Although the discussion at the meeting centred around holding the next meeting on March 20, 2008, it was later learned that this is the day before the Easter long weekend.

**A new meeting date of: April 3, 2008 has been set.**