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Cairns, Queensland 4870 Australia 10 December 2010

The Director,

Keren Kayemeth LeIsrael,

Head Office,

1 KKL Street,

Jerusalem 91002

Israel.

Dear Sir/Madam,

Re: articles on soil improvement, reafforestation and forest fires

I am aware of the wonderful work done by the KKL-JNF, particularly in forestry. I think you may be interested in the attached articles, which I hope may be helpful in agriculture, forestry, soil improvement and forest fire management in Israel.

Pages 34-37 in the "AID treatment" article, provide some specific recommendations for semi-arid and Mediterranean climates. I can email you a copy if you are interested.

I would like to suggest a technique which may not have been tried and tested, but which, if it works, could change forests from predominantly flammable vegetation (such as pine and eucalyptus trees), to predominantly low-flammability or fire-retardant vegetation.

Seeds of low-flammability or fire-retardant herbs/shrubs/trees could be fed to livestock such as goats, sheep or Galloway cattle (I am not an expert on the indigenous flora of Israel, but *Atriplex halimus*, *Medicago sativa* and *Portulaca oleraceae*, might be suitable, and there would no doubt be other, perhaps more suitable plants. Although it is less desirable, plants which are weeds in Israel could also be used, such as *Opuntia* and *Carpobrotus* – in the case of these plants, whole fruits could be fed to livestock). Around 24-48 hours later, the livestock could be confined by electric fencing or herded, to intensively graze pine seedlings/young trees. While they are doing this they would deposit dung, and the seeds of low flammability plants would germinate in the dung. This should work well with legumes,

either herbaceous or woody trees or shrubs such as *Acacias*, and the animals could also be fed appropriate *Rhizobia* and mycorrhizal fungi. If this works, flammable pine seedlings could be controlled and replaced with low flammability plants in one operation.

This technique could also be applied to create fire-breaks of low flammability vegetation. When the plants are established, they could be grazed at a specific time to produce fresh green growth during the fire season (and to reduce the build up of fine fuels). These techniques could at least reduce the intensity and speed of forest fires.

Hedges of *Aloe arborescens*, or *Opuntia*, and climbers such as *Senecio tamoides/angulatus* or ivy pelargonium grown on wire mesh fences could be useful to protect houses from fire (see pg. 4 and 21 in the "Fire Shields" article). Hedges of thorny fire-retardant plants, (e.g. *Aloe arborescens*, *A. ferox*, *A. striatula*, *Opuntia* spp., *Cereus* spp., *Euphorbia* spp.) between forests and built-up residential areas could act as a deterrent against arsonists, making it difficult to get into a forest to start a fire, and may stop a fire entering a forest from the outside.

I hope these articles and suggestions are helpful. Please contact me if I can be of any assistance.

Yours faithfully

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