



Overview of the Avon Sandalwood Network Inc Sandalwood Agronomy Field Day 27th October 2006, Bolgart

Due to increasing demand for general sandalwood agronomy information from current and prospective sandalwood growers, the Avon Sandalwood Network Inc held a half day sandalwood agronomy field day in the Bolgart region on Friday the 27th of October. 32 people attended the field day, with several people traveling from as far as Albany to participate.

Two presentations were delivered in the Bolgart hall by Tim Emmott from Greening Australia (ASN Secretary) and Jon Brand from the Forest Products Commission prior to the group heading out into the field to visit several plantations.

Tim Emmott provided an introduction and overview, highlighting the importance of identifying your objectives and the main outcomes you are trying to achieve with your sandalwood project. Tim explained that sandalwood plantations can provide multiple benefits (profit + environmental benefits e.g. biodiversity, salinity etc) however it is important to have a clear picture of what you want to achieve from your plantation right from the start. Tim explained that the design, species, establishment methods and sites you choose can vary according to your goals and objectives and your capacity. Tim also summarized where growers can go to obtain further information.

Jon Brand of the Forest Products Commission provided an overview of Sandalwood Establishment in the Wheatbelt. A copy of his presentation is enclosed. Jon also provided comments throughout the field trip highlighting the following points;

- Jon and Aaron Edmonds discussed the importance of weed control, both in the year of host establishment and in the year that sandalwood is established. This is especially critical when establishing host seedlings in dry years to ensure maximum moisture availability.
- The method of establishing host seedlings at 1,250 per hectare, and then direct seeding sandalwood nuts at host age 1 – 2 years is a proven method for establishing a sandalwood plantation, and is well suited to new growers; however this is only one of several establishment methods.
- The merits of using a combination of host species, however using at least 50% of Jam in the host species mix
- Placing more emphasis on the use of the 'narrow phyllode' variant of jam in both the western and eastern parts of the wheatbelt
- When visiting one of Aaron Edmonds plantations, where Aaron had 3 year old sandalwood growing on 5 year old Mulga (*A. aneura*) Jon pointed out that Aaron may need to thin some of the sandalwood, as the host to sandalwood ratio was high (1 sandalwood for 1 host). Mulga can be very slow growing and a ratio of 1 sandalwood to 2/3 hosts may be more suitable
- The importance of site selection and matching host species to soil types, as seen on the day at Aarons property where he was using Wodjil (*Acacia resinimarginea*) and Rock sheoak (*Allocasuarina huegeliana*) on sandy soils.

Site 1: The first property visited during the afternoon was Calingiri farmer and ASN chairman Aaron Edmonds. The first site was a 5 hectare plantation established in July 2006 consisting of loamy duplex soils. Establishment involved pre-plant weed control in mid June using 2 L / ha of simazine + 750 ml / ha of atrazine + 1 L / ha of Roundup. Nursery raised host seedlings were established in a one pass operation with a tractor drawn mechanical tree planter that scalped, ripped and planted the seedlings.

The host species used was Mulga (*A. aneura*). Rows were spaced at 5 metres apart. Aaron noted that he did not establish the rows across the contour in this instance as this would have resulted in short rows, and he wanted long strait rows for ease of future management. In early September Aaron used a firebreak boom to touch up later germinating weeds in the inter-row (mainly ryegrass).

Aaron places importance on weed control in the early years of establishment, to ensure maximum moisture availability to hosts and sandalwood to enhance survival. Aaron will direct seed sandalwood nuts at this site in autumn 2007.



The second site visited at Aarons was a 30 hectare plantation with host seedlings established in July 2006. The soil type was predominantly yellow sand plain. At this site Aaron used a combination of pre-ripping then hand planting, and a mechanical tree planter to establish the host seedlings.

The same pre-plant herbicide was used as per the site mentioned above, without the inter-row application post establishment, as the weeds were not as aggressive on the sand plain, and Aaron did not mind a bit of cover on the sandy soils to protect from erosion. At this site Aaron has used 4 separate host species including typical Jam (*A. acuminata*), Wodjil (*A. resinomarginea*) and Rock Oak (*Allocasuarina huegeliana*). Aaron established long rows at 5 meters apart, with every second row consisting of Jam, Wodjil, Jam, Wodjil, Jam etc, and other rows consisting of Jam, Sheoak, Jam, Sheoak, Jam etc. The host species mix was 50% Jam, 25% Wodjil, 25% Rock Sheoak. Given the sandy soil type, Aaron is matching host species suited to these conditions. Aaron will direct seed sandalwood nuts at this site in Autumn 2007.

Aaron pointed out that this site was chosen as it was of low productivity for broadacre cropping, subject to frost, wind erosion and nutrient leaching. Some wind erosion was experienced post establishment along the scalp lines running east – west created by the mechanical tree planter.



Adjacent to the above site the group inspected a plantation with hosts (Jam and Wodjil) established in 2005 and sandalwood seeded in April 2006. Aaron noted he experienced problems with foxes digging up and eating sandalwood nuts after he had sown them in autumn. We then inspected a plantation with hosts (Jam and Rock sheoak) planted in 2004, with sandalwood seeded in 2005. Aaron noted that parrot damage was a problem earlier on, as they were traveling adjacent to the plantation in a row of planted river gums. Aaron has since removed the river gums and reduced the impact of parrots on his plantation.



The final site visited at Aarons was a 5 hectare plantation with hosts (Mulga, Jam and Rock Sheoak) established in 2001 and sandalwood sown in 2003. Aaron pointed out that a severe frost in mid June 2006 had reduced the amount of seed on these trees this summer. Aaron noted that he finds sandalwood established in gaps between hosts where the sandalwood have access to full sun and no shading effects from the hosts are growing strongly.



Site 2: The next property visited was Calingiri farmer and ASN committee member Matt Edmonds. Matt has been establishing sandalwood plantation on his property over the past 4 years. Here we visited a 4 hectare plantation established on a sandy duplex soil in a long, narrow belt (6 rows wide). This plantation is part of a developmental project funded by the National Landcare Program through Greening Australia in partnership with Geoff Woodall. At this site direct seeding of the hosts is being trialed. This site was sprayed with roundup in mid June, and then 600 grams per hectare of host seed was direct seeded in a one pass operation using a mechanical tree planter in late June 2006, creating a wide scalp and shallow rip (30cm). An excellent germination of the hosts had been achieved by the direct seeding. Although the direct seeded seedlings were small, they had developed an excellent root system. Small locusts were visible at the site, and although not causing any damage at the time, Matt was going to consider a insecticide application as a precautionary measure.

Matt explained that sandalwood seed was also distributed during the direct seeding operation, to assess opportunities for establishing hosts and sandalwood in the same operation. Matt explained that this site had been chosen to provide a permanent wind break and shelterbelt, as well as act as a wildlife corridor. 15 native acacia species were used in the host species mix at this site. Matt explained that the direct seeding operation was very efficient, taking less than 4 hours to set up the machine and seed the site.

Site 3: The final site visited was Barry and Steph Clarke's property, with a 2 hectare plantation established as part of the Forest Products Commission share farming project. Hosts (Jams and Manna Wattle – *A. microbotrya*) were established in 1997, with sandalwood nuts direct seeded in 1999 and 2000. This provided an opportunity to view an established plantation, to gain an appreciation of the impact of design (e.g. row spacing) and nut yields. Dean Irving of the Forest Products Commission provided an overview of the history of the site. Impressive seed yields were evident in many of the sandalwoods, and the growth rate was very acceptable.

For more information on the Bolgart Agronomy Field Day, please do not hesitate to contact the Secretary on (08) 9621 2400 or temmott@gawa.org.au

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