

AMERICAN PAULOWNIA ASSOCIATION

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Paulownia and Powerboat Racing

Don Augustine
President, APA

During the second weekend of July Lyndle Seaton, Bob Davis and I met with Charlie Mead to discuss potential Paulownia products. During our meeting with Charlie, he mentioned an acquaintance, who was using the wood to construct boats. I was able to talk with this craftsman and discuss his use of the wood and his thoughts about it.

Gary Pugh of Knoxville constructs boats for the Formula 1 and Formula 2 class of boat racing leagues. These boats use Mercury V6 outboard motors to develop 300 horsepower and race at speeds of 120 to 125 miles per hour in Formula 1, and Formula 2. The V6 develops 300 horsepower to run at 110 to 115 miles per hour. Gary and his father developed this use on their own and this certainly is a great demonstration of Paulownia's qualities.

Further discussion covered the number of F1 and F2 boat builders. At present there are five or six groups involved in the business, Gary is the only one using Paulownia. Overall the amount of wood used to construct a boat is small, so don't look for a major demand tomorrow. On the other hand, his use of Paulownia in this class of boat racing is very encouraging to growers. The sponsorship of F1 and F2 boat racing and its worldwide audience can help only to improve the potential market.

See the following web site for more on the racing

leagues: <http://www.formulaoneprop.com/>

Gary uses 3/4 inch thick material as stringers in the construction of these boats. At present the length is six to eight feet, however, he would use boards up to twelve to sixteen feet if it were available. The material must be free of knots and fairly straight grained. According to Gary, the wood is used where its lightweight is an advantage over other wood such as birch. In addition not every class of boat



#6 Hooters Powerboat driven by Gary Pugh of Knoxville, TN, who uses Paulownia on the hull construction because of its strength and light weight.

uses the same amount of Paulownia. The amount of wood used is dependent on the class weight restrictions, with 50 % Paulownia the highest.

A point he made about the wood was its ability to take a coat of epoxy. One of the last steps in construction is to coat the entire boat frame with marine grade epoxy. This water proofing is important and he stated dissatisfaction with other species reaction to the epoxy coating, as a waterproofing. His biggest complaint was about Balsa. It absorbed large amounts of epoxy, which in turn adds weight to the boat. Contrast that to Paulownia which absorbs less and as he stated, "it takes only one or

President's Message. . .



It's that time of year. Time for a change in officer's of the Association. This is my last message and year as President. As we near the end of this year, recent developments with Paulownia are encouraging for the future. First is the progress with plantings like that in Rocky Mount NC. Another is the variety of products possible with the wood. We all grow Paulownia because it is intriguing and unique, and now we have a use that will demonstrate its potential. A boat builder in Tennessee is helping in that effort by using the wood because it's properties make a better product.

What the Association needs, and you in turn can benefit, is continued experimentation and a willingness to share your efforts with fellow members. Take the time to write an article, take pictures, or give tours of your plantings. Your association needs input, contribute.

I will continue to work for the progress of Paulownia and helping the dedicated people who work to keep this Association growing. Make your work count. Help me spread the message about Paulownia, help it grow into the future!

Don S. Augustine.

two coats to seal".

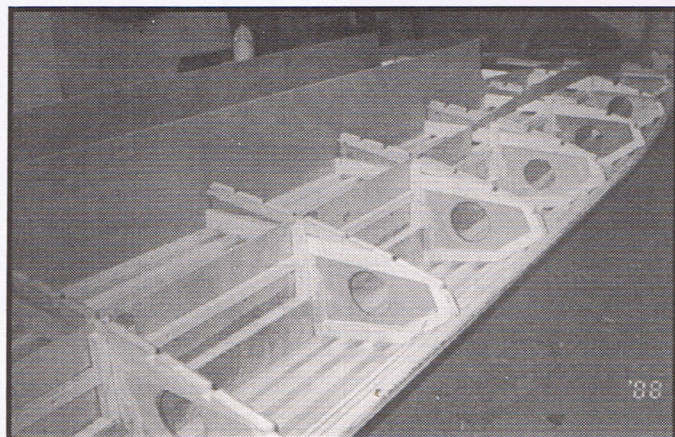
Gary also had a suggestion for other uses of Paulownia. His comment was about a product used to construct the canopy of these boats. A product called end grain Balsa. It is used to construct the enclosed capsule, a part of the canopy. He suggested Paulownia might make a good substitute instead of Balsa. His complaint with Balsa was its absorption of epoxy in this application - he found Paulownia would not absorb epoxy on the end grain as much.

For those of you not familiar with end grain Balsa, the product is used by a wide variety of companies in boats, trucks, trains, interiors, and other structural applications. It consists of Balsa wood cut across the grain creating random blocks

of end grain sections glued together and finally to a sheet of fiberglass. This is a simplification of the process but the result is a product that appears as a sheet of end grain wood. He uses two by four-foot square by 3/8 " thick sheets of end grain balsa.

See the following companies that produce end grain Balsa: Divinycell International Inc. www.diabgroup.com, Bellcomb Corp. www.bellcomb.com, Baltek Corp. www.baltek.com

End grain balsa has been a topic of several meetings of the Association and a possible product application we have considered. We hope to have more information at our annual meeting on the present and potential markets for Paulownia. 🌿



A view of the hull under construction on one of Gary Pugh's powerboats, using Paulownia.

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Herbicides for Site Preparation and Weed Control in Paulownia Plantations

by Philip D. Pannill,, Maryland Dept.
of Natural Resources, Forest Service

Control of competing vegetation is essential to successfully establish paulownia. This usually means preparing the site by controlling problem trees, shrubs, weeds, and grasses; and controlling weeds and grasses after planting, especially around the young seedlings for the first few years. This can be done manually, by mechanical means such as mowing or cultivating, or by use of chemical herbicides. Often more than one method is used in the same area. The use of herbicides as part of a weed control program has some important advantages;

The entire weed plant is killed, including the root system. This prevents root competition (which is only made worse by mowing), and provides longer lasting control.

Often weeds can be prevented entirely, at least for a while.

The risk of mechanical damage to leaves, stems, and roots is avoided, and there is less likelihood of soil compaction.

It can be applied in areas too rough or inaccessible for machines.

It may be safer for workers than manual or mechanical means.

It is faster, and usually less expensive if labor is counted as a cost.

However, for chemical control to be safe and effective it is important to use the proper product, properly mixed at the correct rate, applied at the

right time and in the right way. There are different types of herbicides available. Pre-Emergent herbicides work by killing weed seeds as they germinate, and are usually sprayed onto the soil in early spring. Post-emergent herbicides work by killing the growing plant, and are usually sprayed onto the leaves and stems during the growing season. A surfactant, or wetting agent, is often mixed along with post-emergent herbicides to help them spread over, stay on, and penetrate the leaves and stems. Some post-emergent herbicides are also effective as a cut-surface treatment, to prevent regrowth of unwanted trees in and around the planting site. In this type of treatment, concentrated solutions of herbicide are sprayed or painted onto the outside portion of the cut surface of the stump (the sapwood, cambium, and bark edge) immediately after cutting.

SITE PREPARATION

It is important to get the planting site into condition so that it can easily be maintained, even if it means waiting another year before planting. This means eliminating any competing trees, as well as problem weeds such as multiflora rose, Johnson grass, thistles, kudzu, and honeysuckle. The following herbicides are appropriate for site preparation, by foliar spray and cut-surface treatment, when applied the growing season preceding the spring of planting. One favored method of site prep is to spray strips 3 feet wide with Roundup

Table 1

BRAND NAME(S)	CHEMICAL NAME	TYPE
Roundup, Accord	glyphosate	post-emergent
Garlon	triclopyr	post-emergent
Crossbow	triclopyr plus 2,4-D	post-emergent

Table 2

BRAND NAME(S)	CHEMICAL NAME	TYPE
Prince, Simazine	simazine	pre-emergent
Surflan	oryzalin	pre-emergent
Goal	oxyfloufen	pre-emergent
Stomp, Pendulum	pendimethalin	pre-emergent
Roundup, Accord	glyphosate	post-emergent, directed
Poast, Vantage	sethoxydim	post-emergent, over top
Fusilade	fluazifop	post-emergent, over top


or Accord in September before spring planting. By planting time the dead perennial grasses and broad-leaved weeds will leave a visible strip for planting. Roundup or Accord may also be used in spring immediately before planting, but will kill only grasses and broad-leaved weeds actively growing at that time. Do not use pre-emergent herbicides prior to planting because they can be mixing with the root system during planting. Specific information is provided in the handout materials. Always be sure to read and follow the label directions. (see Table 1)

WEED CONTROL

If you did your site preparation correctly, further weed control is now a matter of keeping new growth down around the seedling. Pre-emergent herbicides work well when applied as soon as the soil has settled from the first rainfall after planting. Generally, pre-emergents can be used right over the top of paulownia seedlings, especially in early spring when there are no leaves on the seedlings. With pre-emergents it is vitally important to mix and apply a given rate of herbicide per acre actually treated. Post-emer-

gent herbicides are used to eliminate weeds which eventually do become re-established. Some post-emergents can be used right over the top of paulownia seedlings, while others need to be applied as a directed spray so that they do not contact the stem or leaves of the seedling. Specific information is provided in the handout materials. Always be sure to read and follow the label directions. (see Table 2)

WHAT TO AVOID

Sometimes it is good to know what NOT to do. The following products, while they are useful and valuable in other situations, do have the potential to cause harm to young paulownia trees. While this list is by no means complete, it does include some herbicides commonly used in forestry and landscape management which in my opinion are not appropriate for, and not labeled for, paulownia site prep or weed control. These are Arsenal (imazapyr), Banvel (dicamba), Hyvar (bromacil), Oust (sulfometuron), Pramitol (prometon), Spike (tebuthiuron), Tordon (picloram), and Velpar (hexazinone). 

APA E-MAIL FORUM

Dear Fellow Paulownia Growers:

I have been enjoying and benefiting from all your comments for months ... so I thought it was about time I reciprocate; to share some of what I have learned about Paulownia.

First, a little about my Paulownia background. I first read about Paulownia in 1991 or 92. In 1994 I was asked to market Paulownia in Mexico (I have several decades of farming experience in Mexico) by a firm that was first, as far as I know, to grow Paulownia in California on a commercial level. I proceeded to market the tree in Mexico, but since the original company could not deliver the quantities I needed, I was forced, by necessity, to go into the propagation and nursery production of Paulownia. My brother and I started a company in California in 1995, and founded a corporation in Mexico (Eco Ranchos S. A. de C.V.) in 1996. We became a member of the American Paulownia Assn. in 1996. We now have a nursery near Santa Barbara, California, and two growing facilities in Mexico. Small quantities of our

trees have been planted in eleven different states of Mexico. The largest plantation is 1,500 trees. We are growing p. tomentosa, p. fortunei, and p. kawakamii. We are growing trees as far south as 18 degrees N latitude. The growth rate in Mexico and California is excellent. Of course, the quality of wood remains to be seen for each particular growing region. I feel most, if not all, of the Mexican production will be needed in Mexico, since their economy and wood-dependent fabricators/manufacturers are in desperate need of their own domestic supply. This is a market we here in America could eventually supply if the Mexicans don't manage their production properly. I give technical assistance all over Mexico, but typically it is not carefully followed. And as you all know, the details can be critical.

Recently (end of December) Lyndle Seaton asked for all the various ways Paulownia might be used. Here the list of probable and possible uses that I have come up with:

1. Furniture (and interior framing) & cabinet

making (high value), especially for furniture with doors and drawers.

2. Door and window frames.
3. Paneling and folding partitions.
4. Paneling and partitions in airplanes and ships.
5. Auto van conversions and yacht interiors.
6. Part or all of musical instruments (wood harp, Japanese koto, Chinese zither, flutes, guitars, dulcimers, etc.)

A friend of mine is a master flute maker in Arizona. I shared some small-diameter branches with him so he might test the wood. I thought the characteristic hole down the middle would help the process. He later wrote to me and I quote a section: "I have worked on my Bass Paulownia Shakuhachi ... until it has become the pride of my collection. Without reservation, the Paulownia instruments are superior to any materials I've used. I recently played a "gig" in an art gallery, where the acoustics were very live. People reacted as though it were a "creature" sublime. I think it has

been a turning (tuning) point in my flute-making journey/experience. I am preparing to make a recording for the drama department of the U of A; a soundtrack for the "Night of the Iguana," and I will definitely be using my Bass Shakuhachi (Paulownia flute)."

7. Cassette and CD storage racks (artisans make these in Mexico. I also had artisans carve statues and columns with 3 year old wood. We were very impressed).
8. Toys
9. Veneer (one of the highest values)
10. Core material (laminated small stock).
11. Logs for wholesale export market.
12. Molding and picture frames.
13. Architraves.
14. Plywood, particleboard, and flakeboard.
15. Wood for use in shoes or sandal manufacturing
16. Inscription plaques.
17. Decorative containers (pails, jewel boxes, bowls, etc.)

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18. Humidors (cigar containers).
19. Lining for safety deposit boxes.
20. Coffin construction.
21. Poles and posts (very straight, cylindrical, very rigid, light weight and easy to work with; construction at village level. Some areas of the world fence posts are very expensive, or are no longer available.)
22. Pulp (requires very little bleaching, medium fiber. I had 12 year old *P. tomentosa* wood tested by a Mexican paper mill, and they have accepted it as very valuable in their processing of paper.)
23. Pallets, boxes, and crates (light weight, air freight crating minimizes shipping costs).
24. Packing material (natural insulation, biodegradable packing, no odor and no taste).
25. Filtration material for evaporation coolers.
26. Beehive construction (resistance to cracking and warping, good insulation qualities, light weight).
27. Food and gift packing (cuts thin, light and strong, free from odor or flavor; pack specialty foods such as cheese, fruit, coffee, etc. Commonly used in Europe, Middle east and Asia.)
28. Wood carving of logs (decorative posts,

etc. I had a 3 year old trunk carved in Michoacan, Mexico. The artisan was very excited about how easy it was to work the wood. The result was a beautiful carved column, but because of the young age of the wood, it eventually split. But even as young as a five year old trunk, which I didn't have at the time, probably wouldn't have split, and this would be 25 years younger than any wood they have historically carved with.)

29. Fish net floats.
30. Activated charcoal for filter systems.
31. Crown of tree used for arts and crafts (small stock used for paint brush handles, pencil wood, charcoal bars for sketching, etc.).
32. Dairy farm bedding and chicken house litter.

Well, that's all the time I have. Thanks to everyone for all your sharing in the past. I think marketing the wood domestically and growing a large enough quantity, are our biggest challenges at this stage. If you want to call or write: Tim Hall, Eco Ranchos, 10577 Almond Ave., Oak View, CA 93022, Telephone (805) 649-2149.

Have a sprouting good New Year!!! 🌱

Tim Hall,
Oak View, CA

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Maryland State Fair Augurs Bright Future for Paulownia

by Emanuel Orlick
Brandywine, Maryland

Early in March 1999, I received an invitation to present an "Exhibit" on Paulownia, at the Annual Open House, sponsored by the Maryland Department of Agriculture, at their prestigious Headquarters in Annapolis, Maryland. This was scheduled to take place on March 20, 1999, during the Annual National Agriculture Week, which is sponsored by the U.S. Department of Agriculture.

The invitation came from the Secretary of Agriculture for the State of Maryland. It was addressed to Emanuel Orlick, Paulownia Tree Association. The invitation would not have been sent to me as an individual who is growing Paulownia trees in the State of Maryland. It would not have been sent to me as a member of any Paulownia Association outside the State of Maryland, including the American Paulownia Association.

The Secretary of Agriculture, for the State of Maryland, chose the name, "Paulownia Tree Association". He knew that I was very active in promoting Paulownia and picked the name that would permit me to present an exhibit at his annual Open House, which attracts more than 6000 visitors every year.

Although I have given many talks and written many things about Paulownia, this was the first time that I have been asked to present an "Exhibit", and frankly, I had nothing to exhibit. I shuddered at the thought of sitting all day at two or three empty tables, surrounded by other exhibitors who had attractive, professionally-designed exhibits, with posters, signs, publications etc.

However, this was a terrific opportunity to tell a few thousand people about Paulownia, and I accepted. Then came a frantic rush to beg, borrow and scrounge, anything related to Paulownia, with which to cover my barren tables.

One of the first persons contacted was David Drexler, by e-mail. As the person who heads up the new American Paulownia Association E-mail Program. David relayed my call for help, instantly, to every member on his list and I began getting phone calls and e-mail messages the very same day. I phoned Dan McConaughy, who represents Maryland on the APA Board of Directors. He sent me some items and gave lots of good advice, but was unable to help with our exhibit on March 20, 1999, because he was attending a meeting of the Board in Nashville, Tennessee, on that day.

Bob Davis, our Past President, called me on the phone, and then sent a big box packed with all kinds of APA publications, and a variety of products made from Paulownia. Someone from Virginia Tech and/or Virginia Cooperative Extension, sent me a carton of their excellent 30-page booklet, entitled "Tree Crops for Marginal Farmland - ROYAL PAULOWNIA - With A Financial Analysis" Every copy of this was picked up by visitors to our Paulownia Display, in Annapolis, Maryland on March 20, 1999. Thanks! Please send me your name.

Dan Finch and Jack Finch, aided and abetted by Rudy Perry, all of Finch Nursery, in Bailey, North Carolina, sent the biggest box of all, packed with numerous Paulownia wood products, from the raw to the finished state, including some pieces three-feet long. Their 4-page, glossy, colored brochure, showing rows of 2-year old coppiced Paulownia *Elongata*, at least 20-feet tall, were picked up first by every visitor and were all gone before noon.

My son, Ron Orlick, and I, ran off a few hundred copies of a very impressive report written by Dr. Zhang Husxin, Director of the Paulownia Agroforestry Research Department, at the Chinese Academy of Forestry. In addition, we prepared and distributed a two-page article of our own, aimed at encouraging all Maryland farmers, foresters, and land-owners to grow Paulownia. 🌳



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E-Mail Forum Question ...

DEAD STALKS

The first of Feb. I coppiced my 8 one year old Paulownia trees and placed the cut off stalks on the roof of a shed in my back yard. Last week I checked on the 8 stumps at my farm and found sprouts 12"-15" tall coming out of each stump. To my amazement I also discovered last week sprouts coming out of the stalks on top of the shed roof. I thought they were dead stalks. I have selected the best sprout on the stumps in the field and removed all of the others. I have sawed off 4" sections of the "dead" stalks that included a sprout and have planted them in a pot to see what they will do. Has anyone else had this experience with "dead" stalks? I found it quite interesting.

Bill Mills, Albany, GA.

E-Mail Forum Answer ...

ANOTHER POINT

The sprouting and rooting of cut, dormant stem section is something I have observed frequently over the years with Paulownia elongata. By accident at first. Now I routinely stick the dormant stem cuttings from year-old plants directly into the soil in my nursery with no other treatment and find about a third to half will root and emerge as healthy plants in the spring. The stem pieces I use are typically 12 to 24 in. long and up to 1 in diameter, cut from stock plants in January or February. I stick them 2 to 3 in. into fairly sandy soil so that it drains well. Since rooting frequency is low, I place them very close

together (say 1 ft or less on center) knowing that I will have to move them. I couldn't justify this method if there were lots of time or effort involved with a result of only 50% rooting, but for very little effort it's ok. I water occasionally, but that's it.

Dr. Ben A. Bergmann
Dept. of Forestry, N. C. State University



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a culture is to add a new plant
to it's agriculture."*

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