I have been asked to discuss today St. John’s wort from a farmer’s viewpoint. I think I can do this as we are dirt farmers growing and collecting the crops we market. We have cultivated small acreage of St. John’s wort [hereinafter called SJW] for several years at our South Dakota and Kansas farms, and we have tried cultivation also at our Texas farm. We have some substantial acreage of one-year-old cultivation.

Cultivators of the soil, farmers view the world about them, the product they cultivate, and the way they do business from a somewhat different viewpoint than the buyers, dealers, manufacturers, users, and scientists of the same product.

I will discuss SJW from the farmer’s perspective. We must remember in dealing with a farmer, as is the case with all other folks, that his or her perception, regardless of whether it is right or wrong, tends to be his or her reality.

Prices of the dry SJW herb have risen from $2.50 per kilogram (kg) or $1.13 per pound (lb) in 1995 to $8.00 per kg or $3.91 per lb at present [1998]. We can expect high prices for the next two or three years, and then, I promise you, the price will fall out the door and down into the cellar. [This was a prescient prediction; SJW prices are now (November 2003) around $0.90–1.35 per lb, with prices being less a function of availability]
(there are ample supplies available), but more dependent on quality and the presence of certain of desired marker compounds. —Editor

At the worst, if the herb does not live up to its newfound reputation, or if the results of the forthcoming clinical trial funded by the National Institutes of Health (NIH) are negative, the prices will go as low as $3.00 per kg and demand could go to about zero. [Another interesting prediction; the NIH trial on SJW funded by the National Center for Complementary and Alternative Medicine published in April 2002 resulted in a failed study. Neither SJW nor sertraline (Zoloft*) showed any efficacy in the trial, which was conducted on patients with severe major depression. —Editor]

If the herb does live up to its reputation, or if the NIH trial produces positive results, we can still expect high prices for the next 3 to 4 years, but after this, prices will go down from current levels. I say this because most every person in the U.S., Chile, Australia, and China — who has heard of SJW, and owns a shovel and a hoe, and a few dollars to buy seed — is planning on trying to grow a little or a lot of acres of SJW. Those few farmers who are truly good farmers and horticulturists will succeed. A large percentage will fail.

While SJW is native to Europe, it has naturalized in waste places and along roadsides in Asia, North and South America, and Australia. It is one of those native European plants that has followed European settlers wherever they have traveled in the world. Early settlers introduced the plant to North America, and by 1793 the first recorded herbarium specimen was collected in Pennsylvania.2

Especially vigorous populations in western North America and Australia have made it a serious weed problem. [SJW is known as Klamath weed or goat weed in the Pacific Northwest. —Editor] It is particularly aggressive in poorly managed and overgrazed rangeland with dry summers. Historically, the greatest economic importance of the herb focuses on SJW as a serious weed of rangeland in Europe, Asia, North and South Africa, Australia, and eastern and western North America. [Hypericum perforatum is listed as a Noxious Weed in the states of North Carolina, South Dakota, Montana, Colorado, Washington, Oregon, California, and Nevada. —Editor]

Wild SJW in rangeland is a major problem because in seasons when foliage is limited in pastures, livestock will consume SJW and their skin then becomes sun sensitive, even to the point of death in many cases. [From an ecological perspective SJW presents a problem as it chokes out some native grasses, thereby reducing potential natural forage for grazing animals and increasing their reliance on SJW as a food source. —Editor]

Most of the North American scientific studies that have been devoted to the plant have, ironically, been focused on how to eradicate it from rangeland. Despite its value as a medicinal plant, eradication programs have been developed in Canada, California, Oregon, Washington State, Idaho, and Montana, and Australia to eliminate this invasive alien. A natural enemy of the plant, the Chrysolina beetle, has been used in California, Oregon, Washington State, and Australia, and introduced in Canada as a natural biological control to kill the plant. However, this beetle has been marginally successful. [This marginal success in the wild has been tempered by the beetles’ devastation of some commercial cultivation plots. —Editor]

Establishing a crop of SJW by direct seeding in the fields has been one of our biggest challenges in my 40 years of farming and we still have not succeeded well. Costly greenhouse plants can be used to secure a good crop fairly easily with the usual agricultural practices. However, the cost of greenhouse plugs will become cost-prohibitive in the next few years. [Of course, this is all relative to the price of the product, the yield per acre (or square foot in greenhouses), and timeframe required to produce a harvestable crop. —Editor]

Growing St. John’s Wort

Someone will ask, why report that SJW is a hard plant to establish when it is considered a noxious weed in a number of areas over the world?

I will answer that question by saying that if you have a bare piece of alkaline acreage that you want to grow SJW on and have 10 years of time, it is an “EASY GO.”

Just throw out 2 pounds of expensive seed per acre for each of about 4 or 5 years, spray the grass twice a year with a grass-killing herbicide, mow the remaining weeds 2 or 3 times a year, and await until your 9th or 10th year, and “presto” — you have a good solid crop cover. However, your cost of land, seed, herbicide to kill the grass, and interest on your investment by this method will make your cost far more than the coming market will bear.

Most of us don’t have the 10 years of time, or want to support the cost of 2 pounds of seed a year for 4 or 5 years, and the cost of herbicides and mowing for 8 or 10 years.

Geographical location of cultivation is important. Successful cultivation must be somewhere close to or between the 42nd and the 47th parallel North or South to grow a good crop of medicinal St. John’s wort. The most vigorous SJW plant colonies in the wild only grow naturally from the coast inland to about 200 miles from the sea coast, and not in the interior of the continents. SJW grows wild in the northwest area of North America to about 200 miles inland in northern California, Oregon, Wash-
strongest 2 will crowd out the others within a couple of months. If only one comes up, you still have a plant.

Greenhouse plants sowed in January will be large enough to set out in the field in mid-May. Germinate cool, at around 45°C to 50°C F, then grow at 60°C F. Keep moist and be sure you have well-drained alkaline soil. Having wet feet [not letting the roots dry out between watering] kills SJW seedlings quickly. Also, make sure soil is at least 6.8 pH — 7.2 pH would be even better.

For outside direct field seeding, sow in late autumn or even in the early winter. The timing should be late enough so the seed will not germinate. Let the seed lie all winter. It will germinate in the spring. Direct seeding has not been very successful for us.

The reason for failure is that even when we put in enough seed to ensure germination of 300,000 to 400,000 seedlings per acre, the seedlings are so small, they do not compete well with the weeds and grasses. These small seedlings must have constant moisture for the first 60 days and this requires some type of nursecrop [such as an annual grass] to hold in the moisture, limit weed growth, give shade to the small seedlings, and provide wind protection. At the same time, the small SJW seedlings require a very moist micro eco-level at the soil line. To do this requires good drainage and perfect irrigation control.

The constant moisture necessary to provide the described micro-conditions brings rapid and rampant weed growth, which, in turn, out-competes with the small seedlings.

Three- to five-month-old plants from the greenhouse set in the field at the rate of 30,000 to 40,000 per acre in rows can be cultivated and hoed, or treated with a pre-emergence herbicide. This method has proven successful for us, but again this method is very costly and in future will become cost prohibitive.

Let's discuss varieties. The highest hypericin content seems to come from the narrow-leaf variety, which is native to the southern part of SJW's range in Europe. This narrow-leaf variety normally has a much higher percentage of hypericin than the more broad-leaf variety from the northern part of the European natural growing range.

The SJW growing in Chile, Argentina, Australia, northwestern US, and western Canada appears to be the narrow-leaf type. However, there are some genotype differences among the South American versus Australia versus western US types. All are high producers of hypericin, but have some various differences in the biomass growth.

There have been some selections of SJW made by European seed companies and the best known is Topas. There is also a Topas II and several other selections. From our point of view, we still find the northwestern US type the best.

Plants set in May from the greenhouse need constant good moisture in the first growing season. We are afraid to try grow-
ing without irrigation. One fertilization of 50 pounds of potash and 50 pounds of nitrogen per acre will suffice for the first year.

The young plants lay flat on the ground and are very insignificant the first year and very subject to competition from (other) weeds. If they are 5-month-old plants from the greenhouse, you can expect that 10% or 15% of the plants will throw off small flower stalks in late July and August of their first year. These flower stalks, in our experience, are not enough to warrant economical harvesting and their active ingredient is very low. We let them go to seed and hope the seed will fall to the ground and germinate the next spring and increase plant population.

Contrary to some literature and several US promoters who indicate one can expect a crop the first year, one cannot get a good first-year harvest from direct seeding or from plants. In our experience, it is totally unrealistic to expect a good crop the first year.

In the second growing season, the still small, flat plants appear early in spring. In the first 30 days of the second growing season, these small insignificant plants will send out root rhizomes and each plant should become 3 to 4 plant centers. The mother plant (a second-year plant) will produce second-year flowering tops. The rhizomes will produce next year’s flowering tops.

By late June or early July in the second year, the small plants suddenly explode. The appearance of the foliage changes. The plant begins growing upward. In the space of 3 weeks, the original small, flat plants, not the new rhizome plants, will put out leafy flower stalks from 20 to 30 inches tall. Each plant will have from 1 to 20 flower stalks. Buds will form and flowers begin to open.

At this stage, harvest must be made if you are to have a high level of hypericin. Hypericin is presently considered a species marker; many scientists are now speculating and looking for the true active compound(s). Only the buds and flowering tops, including top leaves, can be harvested if you expect 0.1–0.2% hypericin content.

This means cutting only the top 6 to 8 inches of the flowering tops. If some of the flowers have been pollinated and seed-pods are appearing, you have missed the window of opportunity for the highest quality. American manufacturers of capsules may purchase older material, but the extractors who buy the big volumes and standardize extracts to hypericin levels will avoid the over-aged product because of its low hypericin content.

We harvest our crop with a self-propelled forage harvester with an electric eye control on the header, so we are always cutting the product at the correct height. We dry the product in a chain dryer [a continuous belt flow dryer] with heat profiles not above 130° F and in total darkness. Sunlight or artificial light in only a few hours destroys the hypericin and the product is then no good for extractors.

For this reason field sun drying will not work, contrary to what some wildcrafters and collectors and promoters are doing. One must dry in the dark and this generally calls for using commercial crop dryers.

We package the dry material by baling and putting the bales in burlap bags, which are sewed shut.

An acre of second year SJW, well-watered and fertilized, can yield a second cutting 4 weeks after the first. Two cuttings can be expected to yield between 1,000 and 2,000 pounds per acre the second year and for the third and fourth year. After 4 years, we find yields decrease and new plantings are more efficient, cost-wise.

At present, high prices of $8.00/kg and more a pound, this is a fair profit. The prices we expect in 3 to 4 years from now will only be marginally profitable for the grower. However, the farmers who use 100% machine culture and harvesting, and use chemical weed control and rapid dehydration equipment, may be able to secure reasonable profits if they engineer an agricultural method to direct field seed or if they develop a source of very, very cheap greenhouse plants.
I want to discuss one other problem before we go to SJW marketing and cultivation from a farmer’s viewpoint. SJW is considered, by law, a noxious weed in California, Oregon, Washington, Idaho, Montana, Maine, Nova Scotia, and many other places. Normally, noxious weed laws have exceptions in which you can get a permit to grow them, if the grower meets certain conditions of control.

Some state and local weed committees, due to their lack of information, refuse to even consider issuing an exception permit. In reality, you should not let your crop go to seed, as only buds and flowering tops are marketable. In reality, SJW seedlings, the first year, cannot survive in an active pasture, cultivated field, or a plowed field. They will only survive on disturbed soil that is not further disturbed for one year, such as roadsides, new road cuts, and abandoned fields.

From personal experience, I can tell you of several areas in the northwestern US where local and state committees did refuse to even consider our application for an exception to their noxious weed restrictions. Don’t assume that these noxious weed laws are toothless, as my company has already run into two near disasters with this type of thinking. If you plan to cultivate SJW, contact local authorities and get a written commitment from them.

SJW Marketing

Let’s discuss SJW marketing from a farmer’s perspective. First let’s divide farmers into two groups: subsistence farmers and commercial farmers.

A subsistence farmer’s primary (and often only) motivation is survival of his family. Survival of his family depends upon cash flow, even more than actual profits. His farm is small. He may or may not own the farm, but food and shelter for his family is his main concern. The subsistence farmer, if advanced production costs by the front line buyer, can be motivated to grow small lots of SJW using low technology. This is typical of what has been effective in Eastern Europe and could be put into effect in China.

To motivate a subsistence farmer to grow an herbal or nutraceutical crop or SJW means you must finance the seed, fertilizer, and water, and then buy the crop. To do less will destroy his cash flow (i.e., his survival) and, normally, he just will not do this without some security such as advances for cost and living expenses.

The other type of farmer, the commercial farmer, grows crops to make a profit. This type of farmer knows they can make a living of some type working in town for someone else, but prefer to farm because they can either make more profit than work in town or because they prefer the lifestyle — even though it may provide only equal profit to town work.

To motivate this commercial farmer to grow herbs or nutraceutical crops, the crop must provide a reasonable chance of profit, superior to growing commodities such as food or fiber. Food or fiber you can always sell somewhere, even if there is an oversupply. One can even sell at a low price to recover (most) costs and some cash flow.

Commodity production such as food or fiber on a good year returns a 4–10% profit margin. In an oversupply year, commodity production can cause a 4–10% or more decrease in cash flow, but it will produce some cost protection and cash flow and with cash flow, however poor, the farmer and his family will eat and be able, normally, to borrow enough money from local bankers to put another crop in next year. A 4–10% gross profit margin is a small margin compared to most other industries, but the volume is high and the margin is somewhat secure on a commodity.

So, it is cash flow that first motivates the commercial farmer; second, it is secure cash flow; and, third, it is profits.

The commercial farmer must see a return supporting his cash flow and profit. He must feel secure that he has the technology to grow and harvest the crop and a profitable, secure market to sell the crop at profits superior to growing food or fiber.

On our farms, both foreign and domestic, we can grow herbs and nutraceutical crops. But what interests our company (and we are typical) is, we must see extremely good gross margins (50–100%) if we are growing for speculation market. We must have the 20–100% margins to cover the risk of several years’ exposure until maturity, as most nutraceutical crops are multi-year to harvest and we must have the possibility of getting our investment money back, plus 10% interest.

How can any farmer or our company do this on SJW?

One way is to have a firm, legally enforceable contract at a fixed selling price. No farmer wants to risk selling his crop for less than market price or below cost, so we, or any other commercial farmer, must set this contract price high. To motivate us to contract, we and most other commercial farmers will only take a specialty crop on a firm contract for volume and price, which has security of a high return.
This is the only situation that interests us in contracting for 100–500 tons of SJW, and we are typical.

The manufacturer/buyer in this type of contract gets the service of security of supply at what usually sounds like a high price. However, the manufacturer/buyer from the farmer's viewpoint has to pay for the risk the farmer takes and the service the farmer gives in providing a secure volume at a firm price.

The other situation we and most other commercial farmers will consider is a joint venture. In a joint venture, we, the farmer, commit to providing the land and day-to-day management, and the agricultural technology. The manufacturer/buyer puts up the cost of seed, labor, fuel, and special equipment needed; and we two parties split the profits produced by the venture.

Thus, the manufacturer — for the security of the supply and for security of getting product at market prices — commits to guaranteeing the direct costs. Further, the manufacturer gets half of the net profit back as return on his investment. We, the farmer, risk 2 to 3 years of land cost and management, office and bookkeeping services, and non-special equipment use and farm overhead for the possibility of half the profits from the end results.

Other than these two possible arrangements of firm legal contract at attractive prices based on today's market or a joint venture, we and most other commercial farmers will have little interest in growing.

Now, I can assure you that there are hundreds and maybe even thousands of small and large landowners in the US, Europe, South America, Australia, and China who will jump at the opportunity to grow SJW since they have heard of its popularity, demand, and price.

But, I ask you, are these people truly commercial farmers with current agriculture technology and persons who have an adequately stable financial base, and the machinery, and management skills to produce the product? Most of these opportunists will not meet these criteria.

Plantation Medicinals has substantial SJW acreage under firm contracts and is working on a positive joint venture, but we have only a small acreage of uncontracted production ready to harvest this year. We are going to plant this year only another small acreage for these speculation sales.

What do I see as the future for our company in SJW cultivation?

Even though we have 1,000 kg/2,200 pounds of good northwestern US seed, we do not feel comfortable to speculate on this crazy market without firm contracts at good prices or joint venture partners who are manufacturers and will share the risk with us.

Why? As I said in the beginning, from our contacts worldwide along the 45th parallel North and South everyone with a little land, a hoe and a shovel, and a knowledge of present SJW prices and demand is trying to put in some SJW.

This goes for Argentina, Chile, Australia, Western and Eastern Europe, Russia, and China. The states in the US include California, Oregon, Washington State, Idaho, Montana, Maine and even the northern part of middle states.

I predict 90% of these farmers will fail or only produce very low quality and will give up. But some 10% of the total group will succeed in doing well enough to continue.

The successful ones, I predict, will be commercial farms. Whether large or small, I do not know. Farmers in Germany, northern France and, most certainly, the larger players in Chile will be successful and probably a couple farmers in the US. In time, we can also expect the Chinese to succeed.

As I just mentioned, it will be the commercial farmers and thus at the first signs of good profits, many hundreds, if not thousands of hectares (2.5 acres) will be planted by the successful producers, neighbors, and friends and the price of raw product will gain commodity status.

So, if present demand continues or increases, we will see high prices for at least 2 more years and maybe 3, then an oversupply and much lower prices.

References:
