

## /CORRESPONDENCE

**Sustainable Harvesting***To the editor:*

In *Bio/Technology's* article on Shaman Pharmaceutical (*Bio/Technology* 11: 549, May), Mark Goodstein indicates that Shaman's "supply of materials... could turn sour at any moment."

Nothing could be further from the truth. The source plant from which we *are already* sustainably harvesting SP-303, the active ingredient in both of Shaman's development products—Provir and Virend—is what botanists call a "weedy, pioneer" species. It is abundant in 12 countries in South and Central America, and it offers several advantages to us. Even without intervention from humans, this species quickly establishes itself in old gardens, along roadsides and along riverbeds, and does so quite rapidly. Furthermore, in a natural setting, this pioneer species produces great quantities of seeds, up to 500,000 per each mature plant. Again, in the wild, only a small percentage germinate. This extraordinary rate of seed production, along with comprehensive continuing research in germinating the seeds for reforestation, provides a foundation for our sustainable harvesting activities.

It is also important to understand that all collections made by Shaman are currently and will continue to be done in a sustainable fashion. The people that we work with are responsible for replanting in all areas where collections take place, including those where wild harvesting is done. All the sustainable harvest and management activities are integrated with local community and cooperatives that have a strong vested interest in sustaining new sources of income-producing non-timber forest products, and they are validated by Shaman. In addition, we are creating a supply industry owned by indigenous people—an industry which is not only highly valued by these peoples, but also by their governments, non-government organizations and conservation organizations all over the world.

Shaman's commitments in the rain forest set us apart from other pharmaceutical companies working in tropical regions. Indeed, our work has been made possible through years of efforts and is currently setting a standard for sustainable harvesting. We estimate that with these techniques, should SP-303 result in a drug product responsible for \$1.0 billion in annual sales, we would require only one-tenth of one percent of the current available supply worldwide.

You should know that supply is a critical consideration when Shaman identifies the compounds it develops. Had we discovered taxol, given the scarcity of the Pacific yew tree, we would not have developed it. We insist that the plants from which we extract our development compounds be abundant and sustainably harvestable in diverse areas of the rain forests, and we do so, in order to prevent the kind of supply problems to which your article alluded.

In summary, Shaman is using many different strategies to ensure the sustainable harvesting of plants. We believe that your article is inaccurate in suggesting that there is "uncertainty over whether Shaman could harvest, in a sustainable manner, enough of the

raw materials to engage in mass production of a drug should it get approved."

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**Innovative Technologies***To the editor:*

Envirogen's response to Russ Hoyle's article (*Bio/Technology* 11: 460, April) is very positive.

In Mr. Hoyle's discussion of "The Stumbling Blocks," Envirogen believes such issues will not impair the growth of the industry. In fact, the EPA is actively engaged in programs to introduce innovative technologies to the marketplace. Although Mr. Hoyle fears that government inertia may retard those who favor new approaches unless there is a strong signal from the White House, Envirogen believes the economic advantage to industry for the use of biotechnology will become the most important driving force in its successful development.

We appreciate your interest in us and the technology.

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altered mice,  
capable of  
understanding  
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**Corrections***To the editor:*

In a letter that I wrote to your journal that was published in the April issue (*Bio/Technology* 11:421, April) I made two errors. The letter was hurriedly composed to meet a publication deadline for the journal. While one of your editorial staff was unkind enough to append a *sic* to my incorrect spelling of Peter Duesberg's name (rather than simply changing it) they failed in their attempts at orthography to note that I had also misspelled the name of my dear friend Andrea von Stemm. In neither case was any disrespect intended.

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*Letters to the editor typically appear verbatim, except for minor spelling and punctuation corrections. We regret any embarrassment arising from this policy.--Eds.*