A Caution about Euphorbia tirucalli

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Network member Bob Mann wrote to us from Gloucestershire, England, after reading the article about living fences in *EDN* 116. The article reminded Bob of a warning from *Amaranth to Zai Holes*, about the dangers of *Euphorbia tirucalli*. The warning bears repeating.

Amaranth to Zai Holes (AZ) contains a short note called "A Living Fence that Might Be Deadly?" It is based on a note in the October-December 1991 issue of *Agroforestry Today*, which in turn is based on an article in *The Economist* (July 6, 1991 pp 86-87) and *The Lancet* (May 30, 1987 pp 1257-58). It reads as follows:

"Farmers near Kabale in Kenya describe traditions, now considered superstitious, that certain euphorbias cause cancer when planted near the homestead." [Euphorbias in Africa fill many of the environmental niches that are filled by cacti in the Americas.] Now the carcinogenic effects of one common living fence species, *Euphorbia tirucalli*, have been described. The active carcinogen has been found not only in the plant itself, but in extracts from nearby soil, vegetables and drinking water. "The report suggests that Burkitt's lymphoma, a common childhood cancer in East Africa, is caused in part by consumption of water and vegetables from sites near this euphorbia." The plant grows profusely in Kenya's Eastern, Western and Nyanza Provinces and in parts of Tanzania. In southwestern Uganda it is widely planted as a living fence to exclude livestock from protected springs, suggesting the frightening prospect that water that has been assumed safe is in fact very hazardous."

After reading about *E. tirucalli in AZ*, Bob looked up several references and sent us the articles. One article was a copy of the description of *E. tirucalli* as given in the SIDA/Regional Soil Conservation Unit (RSCU) Technical Handbook No 10, 'Useful Trees and Shrubs for Uganda' by A B Katende et al. He commented, "The description says this plant is useful as a live fence. Also included were three medical research references where *E. tirucalli* is mentioned, including a review by an international team of researchers, 'Burkitt's lymphoma in Africa, a review of the epidemiology and etiology,' by Jackson Orem, et al., African Health Sciences, Makerere Medical School, Sept 2007.

Bob commented the review "is far reaching, and discusses the ways in which malnutrition, malaria, and exposure to toxic herbs can weaken the immune system and make HIV more likely. In [a] discussion about herbal exposure...it says 'This role

of euphorbiaceae species as possible environmental co-factors in the pathogenesis of endemic Birkett's Lymphoma (eBL) is supported by findings from Malawi where the plant is found more often at homes of eBL patients than in those of controls.'

"As the ECHO note in *AZ* pointed out, the most frightening aspect of the research findings is that the active carcinogen has been found not only in the plant itself, but also in extracts from nearby soil, vegetables, and drinking water. The carcinogen is therefore easily absorbed by people who live nearby through drinking the water and eating crops.

"This plant is called 'Nkoni' in the local Luganda language in southern Uganda where I have been working over the past 8 years. It is used as a live fence and as a boundary hedge; livestock do not touch it. But in 2007 we decided to advise village people not to use this toxic plant as a boundary hedge or for protecting surface water supplies, because of the medical research findings about the danger of children becoming very sick with cancer.

"Just last year l was sent a video clip from [an organization] in eastern Uganda which showed how they are trying to grow food crops, and I noted they were using *E. tirucalli* as a new type of live fence around their fields, because as they said, 'The cattle won't touch it, and keep away.' So l sent a warning to the Mission, telling them that this particular plant was a danger to people's health and should not be used.

"The information that I [included came from] the SlDA/RSCU Technical Handbook mentioned above. I wrote down those indigenous plants/trees growing in Uganda that were specifically described as useful for live-fencing, as follows: *Carissa edulis; Commiphora Africana; Dichrostachys cinerea; Dovyalis abyssinica; Acacia mellifera; Acacia nilotica and Ziziphus abyssinica.*

"[Each of these plants/trees is] indigenous and...thorny. In addition, Bougainvillea, Mauritius thorn (*Caesalpinia decapetala*), and Lantana can also be...good hedges. From experience of research workers with the Agroforestry Department of the National Agricultural Research Institute (NARI) at Brikama, in The Gambia, West Africa, they say that most hedge plants, whether indigenous or exotic, require proper management by way of regular trimming and weaving to make them compact and dense, so that livestock cannot pass through."

Erwin Kinsey, director of ECHO's East Africa Regional Impact Center, has lived and worked in East Africa for many years. He commented, "*Euphorbia tirucalli*...is used as a living fence primarily BECAUSE it is NOT edible fodder, is drought resistant and is easy to replicate. However, I was aghast one day to watch camels along the roadside consuming *E. tirucalli* when I passed through Nanyuki, Kenya during a particularly long drought period. I was so surprised that I stopped the car to make sure they were swallowing it—they DID."

Kinsey added, "Living fences which are edible by goats do not successfully confine them, which is why perhaps [it is best] not to use fodder trees as living fences, a possible correction to *EDN 116*! Hedgerows for fodder ARE appropriate and, when protected until branch growth exceeds the height of the reach of goats, they can persist as living fences. When we discuss as not suitable for fodder, *E.*

tirucalli qualifies according the definition in *EDN 116* , but now that has to be further qualified. Many species which are not edible by cattle are consumed by goats who were formed by God to be browsers."

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