Concentrates, Inc. is excited to be working with Monsoon Farms Direct, LLC to bring high-quality and affordable organic Neem (*Azadirachta indica*) and Karanja (*Pongamia pinnata*) products straight from farmers in Central and South India to our customers here in the United States. This document contains background/history, product information, directions for use and common questions about Neem and Karanja.

_Disclaimer: Concentrates, Inc. and Monsoon Farms Direct, LLC make no claims for human health, horticultural benefits and pesticidal/fungicidal/insecticidal properties of the Neem and Karanja products discussed in this document. We have gathered information for general educational benefits based on general knowledge data from neemfoundation.org and technical study/papers listed in the appendix of this document._

*Please Call for Current Pricing and Availability*
Neem and Karanja

Azadirachta indica and Pongamia pinnata

HISTORY AND BACKGROUND:

Neem (Azadirachta indica) is a medium sized and drought tolerant evergreen tree endemic to south Asia. It blooms in Southern India beginning in April and harvest occurs between June to August. The perennial tree can live to be 200-300 years old and its use dates back to the Vedic Period (2000-4000 BC). Ancient Indian text reference neem as Sarva Roga Nivarini, “the curer of all ailments” due to its many and diverse uses. Every part of the Neem tree – the bark, leaves, flowers, seeds – has a use. Neem will likely play a large role in sustainable farming practices globally as producers are beginning to recognize its potential as a bio-degradable, non-toxic, and effective alternative to agro-chemicals.

Recent research has shown that neem extracts can influence nearly 300 species of insect, including some pests, such as floral thrips, diamond back moth, and several leaf miners, that have become increasingly resistant to pesticides. Using neem products for botanical pest management is a non-violent approach as neem is not a pesticide, rather it works to intervene at several stages of the pests' lifecycle and will incapacitate the insects. Neem very subtly employs effects such as “repellence, feeding and ovipositional deterrence, growth inhibition, mating disruption, chemosterilization, etc.”

Outside of agriculture, neem holds great potential to address serious environmental concerns associated with climate change, such as flood control, soil erosion reduction, less salination, reforestation and agroforestry, rehabilitation of degraded ecosystems and waste lands. Additionally, the neem tree has a remarkable ability to withstand air and water pollution and therefore is valuable in urban forestry projects. Neem products are of natural plant origin and have no ill-effects to humans and animals and have no residual effect on agriculture produce. It will not harm bees, lady bugs, or other beneficial insects!

(Pongamia pinnata) is a medium sized tree popularly known as Karanja in Hindi, Indian beech in English, and Pongam in Tamil. It’s an adaptable tree for tropical and sub-tropical regions which requires well-drained soils and full sun. The tree is highly valuable for its oil content (seeds contain between 27-39% oil) and is being explored for its potential use as a renewable bio-fuel. Historically, karanja has been used in India and neighboring regions as a source of traditional medicines, animal fodder, green manure, timber, fish poison, and fuel. Studies have shown that the extract from karanja seed contains significant antidiarrheal, anti-fungal, anti-plasmodial, anti-inflammatory, anti-ulcerogenic, and antioxidant. Karanja seed is rich in protein and nitrogen and work well as a plant based, non-toxic, and effective “green manure” or organic fertilizer. Recent research suggests that Pongamia pinnata has similar antibacterial properties to neem. When used in combination with neem, karanja has been shown to be 70 times more effective in both oil and cake forms.

The following are known benefits of neem and karanja based on current literature and academic research:

- Studies show that karanja contains phyto-chemicals which inhibit the growth of pathogenic microbes that cause diseases in plants.
Neem and Karanja

- Completely biodegradable and leaves no residues.\textsuperscript{20}
- Rich in natural NPK and micronutrients
- Controls nematode population and optimizes soil micro flora
- Reduces use of chemical fertilizers
- Reduces uses of insecticides
- Improves water-holding capacity
- Improves strength, flavor, quality, and product-life of crops
- No effects on humans, no effect on non-target organisms.
- Known to adversely affect root knot nematodes, termites, root grubs, pupae of insects, pupal of thrips, other soil pests, and harmful soil fungi.

PRODUCT INFORMATION:
Where does our Neem and Karanja come from?
We are proudly working in connection with Monsoon Farms Direct, LLC to bring all our Neem and Karanja products from Central and South Indian farmers to our customers in the United States. We manufacture our products with specially developed Cold Pressed Technology to retain maximum benefits and consistency.

What types of product do we carry?
- 44# Organic Neem Cake
- 44# Organic Karanja Cake
- 1 Liter Organic Neem Oil
- 5 Liter Organic Neem Oil
- 5 Liter Organic Karanja Oil
- 55# Organic Mixed Cake (Neem, Karanja, Castor, Mahua) \textit{Coming Soon}
- 55# Organic Neem Pellets \textit{Coming Soon}
- 55# Organic Neem and Karanja Mix Pellets \textit{Coming Soon}

**CALL FOR CURRENT PRICING AND AVAILABILITY**

DIRECTIONS FOR USE:
Leaf Polish:

You can use Neem Oil, Karanja oil, and/or a 70/30 mixture of both as an effective leaf polish. Shake well before use. Mix $\frac{1}{2}$ tsp. of mild soap per quart of warm water. Stir in 1 ½ tsp Neem Oil per quart of water (1 oz. per gallon).

The ideal time to spray is in the late evening or early morning, with cool conditions. Do not use oil during sunlight hours, as exposure to sun will result in leaf burn. In the winter, spray once every 10 days and in the rainy season, once per day. Spray both the top and underside of leaves for more effective results.

Neem and Karanja Oil may solidify at cooler temperatures. Store product between 65-95 degrees Fahrenheit. If oil thickens, place the closed container in a bucket of hot water.
Cake and Pellet Fertilizer:

Neem and Karanja Cakes can be used as a top dressing, or it can be mixed into the top 6 inches of soil. If using in potted plants, mix thoroughly into soilless media (see application rates below). We recommend a mixture of 70% Neem Cake to 30% Karanja Cake.

Pellets can be spread using drop, rotary or pendulum spreaders.

General Recommendations for Application:

- 180 to 360 lbs. of Neem/Karanja Cake per acre of soil.
- 88 lbs. of Neem/Karanja Cake for 2200 lbs. (approximately 1 yard) of soilless media or soil.
- 2 lbs. Neem/Karanja Cake per 100 to 160 square feet of soilless media or soil.
- 6 oz. to 8 oz. (1 cup) of Neem/Karanja Cake per cubic foot of soilless media or soil.
- 1 cup per 5 gallons of soilless media or soil.

COMMON QUESTIONS:

What is the Azadirachtin and Karanjin content of the oils?

- Our Azadirachtin content for Neem Oil is approximately 800-1200 PPM.
- Our Kanajin content is approximately 8,000-10,000 PPM.

For more information, ask for the product specifications.

What is the difference between Neem and Karanja Oil and Cakes from Concentrates, Inc. and other similar products on the market?

Concentrates, Inc. is an industry leader with an established history offering quality products and excellent customer service. Our direct connection with the producers of our Neem and Karanja products allows us to create a consistency (both in terms of chemical and physical characteristics) not represented or available anywhere else in the market. Monsoon Farms Direct collects and manufactures all of our Neem and Karanja with a keen eye towards the quality of seeds sourced and the production processes, leading to exceptionally well-balanced and superior products.

What is the effect of Neem and Karanja on Nematodes?

In greenhouse trials, 1 percent of neem cake (mass/mass soil) caused a 67 to 90 percent reduction in the number of lesions and root-knot nematodes in tomato roots grown in three different soils.21 In the field, 1 perfect neem cake (mass/mass soil) reduced the number of lesion nematodes by 23 perfect in corn roots and 70 percent in the soil around the roots.22

What is the effect of Neem and Karanja on beneficial insects?

Neem and karanja have no known adverse effects on beneficial insects, microbes, or soil fungi.23

Why should I mix Neem with Karanja?
Recent research has shown that both in oil and cake form, neem and karanja when used in conjunction with each other are 70 times more effective than just neem and 11 times more effective compared to just karanja.24

When can I use Neem/Karanja Cake and Oil?

We recommend using Neem and Karanja cake during the whole life cycle of your plants and the Neem and Karanja oil when an issue arises, or as a preventative measure. While using Neem and Karanja Oil, please make sure to follow the directions on the label. Do not use Neem and Karanja Oil during sunlight, as it will burn the plant.

What is the nutritional analysis for Neem and Karanja?

Our Karanja Cake is a 4.5-.5-1.25 on the NPK scale. Our Neem Cake is not registered as a fertilizer and therefore we don’t have a nutritional analysis.

For more information, ask for the product specifications.

3 Ibid.
4 Ibid.
5 Ibid.
7 Ibid.
22 Abbasi et al., 2005
23 Akhtar et al., 2002
24 Vishal et al., 2007