



Neem

'The Tree of the 21st Century'

—United Nations

Evolving a Sustainable Future

Primal is part of a group of Companies dedicated to establishing themselves as lead organizations, driving change to create a more tenable future for our planet by ensuring environment protection, social responsibility and value creation, for generations to come.

A world beset with new challenges requires innovative thinking and a more imaginative approach. Sustainable businesses will be the only survivors in a world with rising environmental challenges, public awareness and accountability.

Primal

- *The very first, **original***
- *Primary in its **priority***
- *Primitive in its **simplicity***
- *Pristine in its **purity***
- *Paramount in its **importance***

Alternative investment specialists in emerging markets, Unique focuses on the solutions needed to sustain a global population racing away to over 10 billion by 2050. By focusing on the Primal needs of man, our aim is to provide a lower risk profile offering better rewards than traditional asset classes.

In a world demanding and deserving of higher social responsibility, sustainable business will ensure a more conscious and profitable future for us all.

Welcome to Our World.

Meet Our Senior Management Team



Anthony J. Archer
Chairman & CEO

A visionary, futurist mindset entrepreneur and thought leader with multiple industries experience. Anthony creates business strategies with a focus on moral, ethical and social responsibility. Not content to just 'play the game', he is determined to change it. The approach is to use his unique and holistic perception of economics, politics, human behavior and technology to provoke, adapt and improve our planet, making commerce a force for good that will result in improved and more sustainable lives for future generations. A Singularity University Executive Graduate, Anthony is driven by a very tangible personal goal of positively impacting the lives of 1 Billion+ human beings through innovation, and execution,



Andrew J. Goodman
Chief Commercial Officer

Andrew is a straight talking, yet amiable economics graduate, responsible for the sales and relationship effort with the existing and future client base. Fluent in both Spanish and Portuguese, Andrew was previously based out of the group's office in Brazil for six years and has extensive experience of our product range and Latin America. A strong advocate of diversification as the only true way to safeguard wealth in an everchanging economic landscape, Andrew is a strong relationship builder, working with clients on wealth creation not speculation.



Guillermo E. Rode
*Chief Business Development Officer
- Mexico*

Attracted by his positive experience and a passion for the company's vision, he joined the company as a partner in 2015. A graduate of the Universidad Iberoamericana, he started his career in commercial real estate working with renowned engineer Antonio Gutierrez Cortina, before joining his family's pharmaceutical distribution business during 1993 – 2010. Since then, Guillermo has been active within the investment world, seeking out socially responsible opportunities that provide him and his family with multi-tiered diversification.

Meet Our Management Team



Prem Patel

Vice-President of Operations

Prem joined Primal Group after graduating from the London School of Economics and Political Science, motivated by his dedication to true value creation that combines financial success with a positive global impact. His nous for business management and commercial awareness, play an integral role in enhancing the operational efficiency of the organization. With experience across all functions of the business, his breadth of understanding allows him to work closely with the Senior Management Team in managing critical projects across the globe.



Paloma Escandón

Global Project Implementation Manager

Dedicated to securing a sustainable future for us all, Paloma informs our everyday activities through her expertise in corporate social responsibility and environmental conservationism. A professional pilot that switched her career path to conservation and sustainability as a means to participate in global environmental improvement, Paloma manages the Brazilian operations of the Company. Her immense attention to detail, determination, distinct passion for innovation and personal goal to change the world for the better, ensures that Primal Group maintains its place at the forefront of the new green revolution.



Henrique dos Santos

Lead Agronomist

A graduate of São Paulo State University with a degree in Agronomic Engineering, Henrique has experience managing large scale commercial plantations across multiple countries in Latin America. With a specialized focus in applying sustainability methodology in order to deliver global change and maximum commercial value, he advocates and actively utilizes the latest agro-ecological and cost-effective systems of production to achieve the highest yields. Passionate about venture capital dedicated to agriculture, he is now focusing on implementation, expansion and delivery of our vertically integrated project.



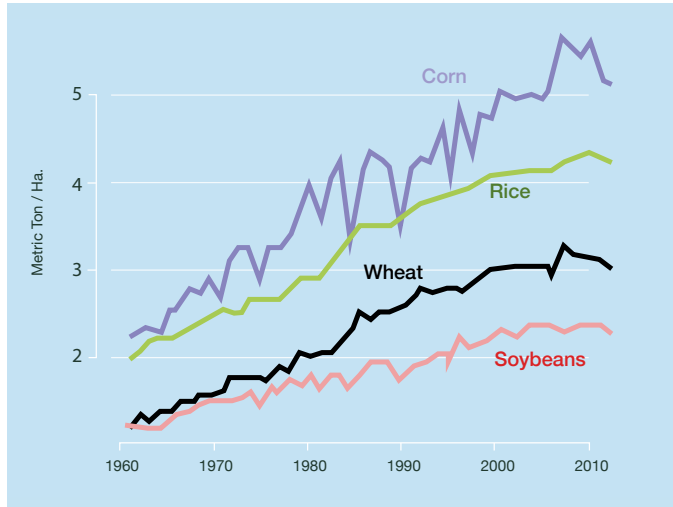
Carmen Lops

Marketing Manager

Responsible for the marketing efforts of Primal Group, Carmen brings multi-industry experience to expand and evolve our commercial initiatives around the world. With professional experience across renowned global multinationals like Volkswagen, Bosch and Bain & Company, Carmen brings a modern and dynamic approach to our marketing activities, maintaining the position of our company at the intersection of sustainability and innovation. Carmen strives to actively engage audiences with our philosophy at all levels in order to ensure social responsibility and better self-governance across society in critical global issues at all levels.

The Green Revolution: Malthus Revisited

Global Yields of Staple Food Crops Have Peaked



Source: UN Food and Agricultural Organization. *Agriculture Towards 2050* (2012).

“The power of population is so superior to the power of the earth to produce subsistence for man, that premature death must in some shape or other visit the human race” – Malthus TR. An Essay on the Principle of Population (1798)

In his seminal work, Thomas Malthus highlighted that unprecedented levels of population growth would use up all available resources and lead to unimaginable amounts of famine and disease. This was known as the Malthusian Catastrophe.

Over time, man’s resilience and ingenuity allowed him to overcome Malthus’ predictions. Much of this was thanks to the immense advances in agriculture fostered by the Green Revolution.

In the early 20th Century, the discovery of synthetic pesticides and fertilizers, as well

as the introduction of hybrid seeds and extensive irrigation infrastructure, led to dramatic yield breakthroughs worldwide and saved one billion people from starvation.

*It took almost **1,000** years for wheat yields to increase from **0.5 to 2** metric tons per hectare, but only **40** years in the 20th Century to climb from **2 to 6** metric tons per hectare¹*

The Green Revolution & Why We Need a New One

The Green Revolution of the 1960s was fundamental to meeting a major threat to the survival of the global population. Now the world is facing new challenges:

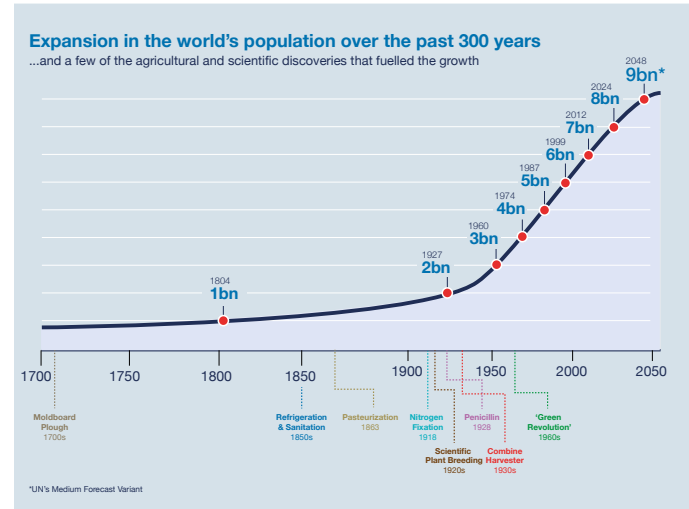
Population growth is unrelenting – There is a 70% chance it will reach 11 billion by the end of this century²

Arable land is in decline – In 1970 each person had the equivalent of 0.38 hectares of arable land, and this is expected to decline to 0.15 ha/person by 2050. At least 0.49 ha/person is needed to maintain current dietary standards³

Crop yields have peaked – Global crop production yields will need to double by 2050 to meet rising demand⁴

So much food is wasted – 40% of food grown in the US is uneaten and goes to waste⁵

The intensive investment in utilizing science for agriculture during the Green Revolution revolutionised agricultural practices worldwide yet it is increasingly raising issues that are affecting both the environment and society. The culprits are an over-reliance on synthetic pesticides, chemical fertilizers and antibiotics used in raising livestock.



Source: *The Atlantic* and Allianz SE. *The 50 Greatest Breakthroughs Since the Wheel* (2013)

Pesticides: Friend or Foe?

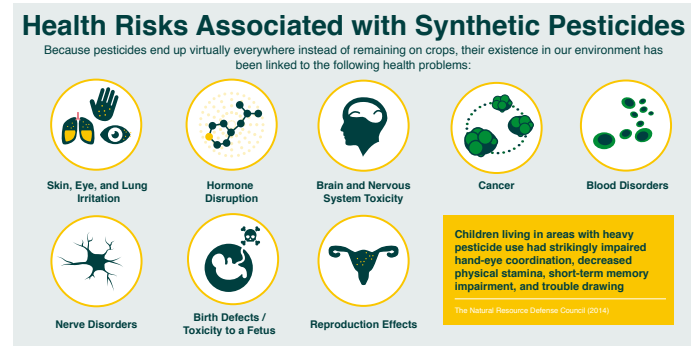
Pesticides are essential for the survival of the human race. By increasing crop and livestock yields, heightening food safety and improving human health, they ensure productivity and our security. Without them, we wouldn't be able to produce enough food for the planet. Although 35% of the world's crop production is already lost annually⁶ due to the effects of weeds, pests and disease, crop losses would double if the use of pesticides were abandoned.⁷

Between 1960 and 1990 extensive pesticide use contributed to crop yields increasing by 98% world-wide⁸

While synthetic pesticides aid farmers by preventing crop losses, the negative effects they have on human health and the environment can be catastrophic.

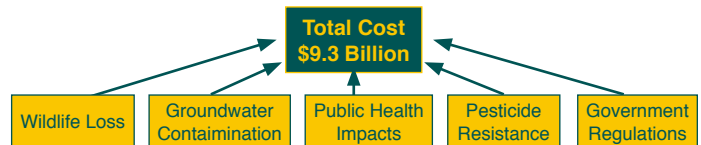
- **98% of sprayed pesticides and 95% of herbicides come into contact with a destination other than their intended target⁹**
- **Pesticides can enter the body through inhalation, by consumption of contaminated food and water, and through direct contact with the skin**
- **There are up to 3 million cases of serious pesticide poisoning worldwide documented each year¹⁰, responsible for up to 250,000 deaths¹¹**

Synthetic pesticides have been widely linked to a range of human hazards that range from short-term to long-term impacts:



Source: Environmental Protection Agency. *Pesticides Health and Safety* (2014)

Financial Impact of Synthetic Pesticides in the US, 2014



Source: Pimentel, D. & Peshin, R. *Integrated Pest Management: Pesticide Problems* (2014)

Fertilizers: The Good, the Bad and the Ugly

Arable land, as a finite resource, has been under pressure to supply enough food for a rising population thereby making fertilizer use essential in increasing agricultural productivity. Globally, in the three decades to 2015, the 'carrying capacity' of the world's soils has jumped from 1.9 people per hectare of farmland to 4.3 people per hectare.

Global fertilizer sales of \$175 billion in 2013 are forecast to rise to \$194 billion by 2018¹²

The use of synthetic fertilizers can benefit plant growth and help to achieve optimal yields, but their excessive use can also be a danger to society.

Synthetic Fertilizers:

- **Damage public health¹³**
- **Lead to lower yields in the long-term¹⁴**
- **Increase pollution¹⁵**
- **Kill a significant percentage of beneficial microorganisms¹⁶**

60% of China's groundwater is either "very polluted" or "relatively polluted" and is unfit for drinking. A major culprit is excessive fertilizer use¹⁷

*There has been a **10%** loss of plant diversity over **two-thirds** of Europe due to the overuse of nitrates in fertilizers¹⁸*

The Rising Tide of Antibiotic Resistance

Discovered less than a century ago, antibiotics are essential to the survival of human race, allowing for the treatment of many diseases previously regarded as fatal. They also enable farmers to treat and protect livestock, helping secure our food chain.

Antibiotics use for both humans and livestock has proliferated:

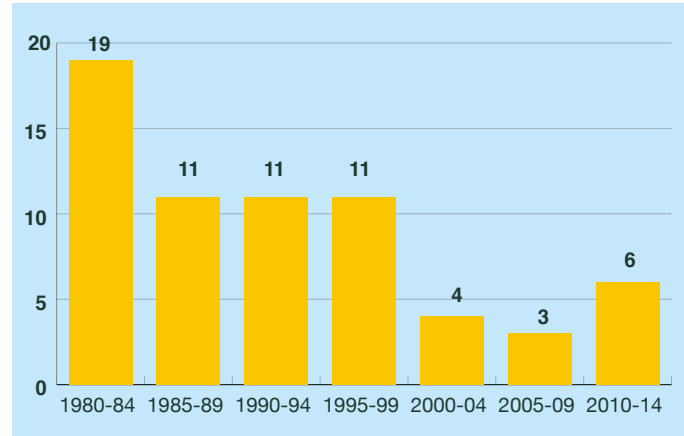
80% of all antibiotics in the US are given to livestock, mostly to speed their growth and prevent diseases¹⁹

Up to 50% of all antibiotics given to humans in the US are prescribed unnecessarily or used inappropriately²⁰

As microbes are constantly adapting and evolving to new environments, they can become resistant to antibiotics due to overuse. Antibiotic resistant bacteria is then easily spread between human, animals and crops.

Pharmaceutical companies spend an average of \$5 billion developing new drug and greater profits can be achieved on areas such as statins, antidepressants and anti-inflammatory medications. By comparison, antibiotics tend to be used for only a short time and are relatively cheap.²¹

Antibiotics Approved by the US Food and Drug Administration

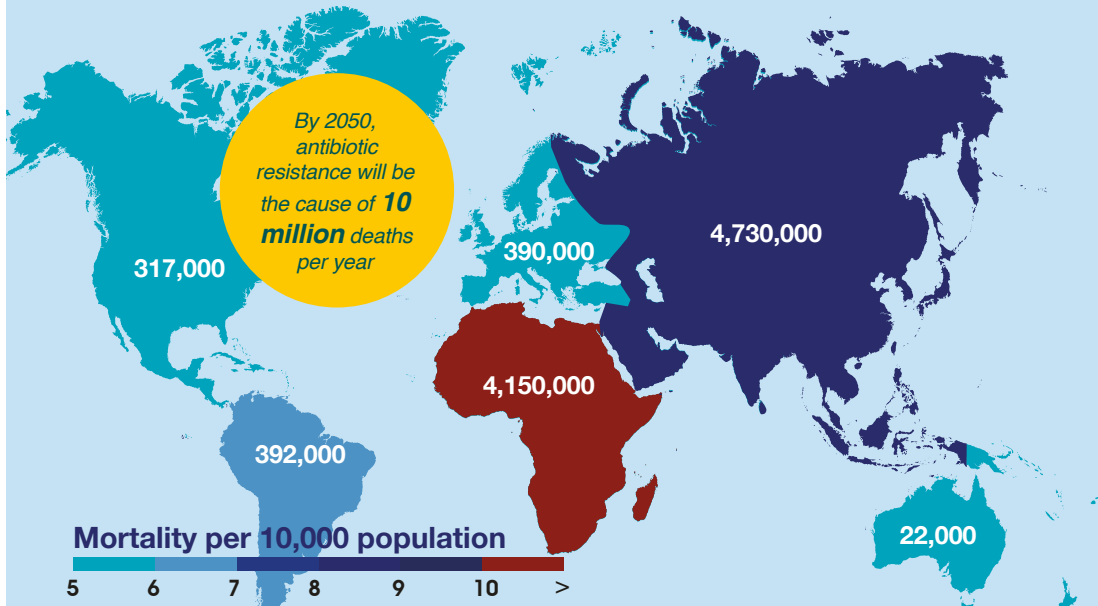


Source: US Food and Drug Administration (2013)

No new class of antibiotics has been discovered since the 1980s²²

A Return to the Dark Age of Medicine?

Forecast Deaths Attributable to Antibiotic Resistance in 2050



Source: Review on Antimicrobial Resistance. Tackling a Crisis for the Health and Wealth of Nations (2014)

Only **1.6%** of drugs in clinical development by world's largest drug companies in 2004 were antibiotics. By 2013, the number of 'Big Pharma' companies with dedicated antibiotic divisions had fallen to only 4, reflecting the long term demise of the sector²³

Antibiotic resistance costs the US **\$55 billion** every year in health costs and losses in productivity²⁴

Push-Pull Factors For a Changing Landscape

Organic food is the only sustainable solution to feed an ever-increasing population. Anything but organics risks further stress on our environment and the associated impact on our health. There are two factors that are changing the way we grow our resources and shifting the world away from intensive farming towards safer methods of cultivation.

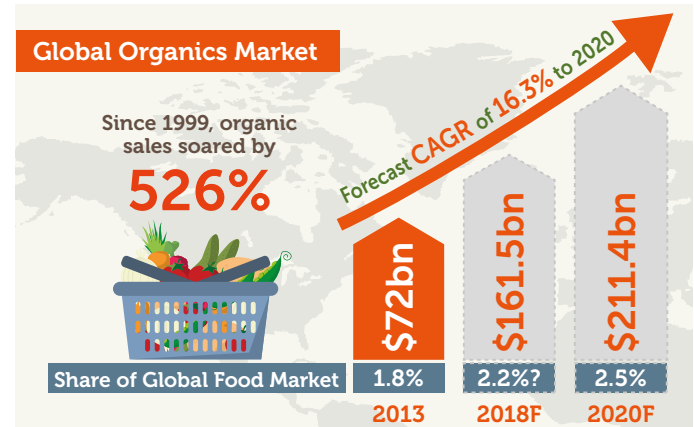
Aware of the impact of intensive farming, governments are imposing a stricter regulatory framework to protect both the environment and people's health:

- In January 2017, the FDA, through its Veterinary Feed Directive (VFD), mandated that the use of certain drugs on livestock can only be done with the approval of a vet.²⁵
- The FDA now requires more than 100 different scientific studies to approve a new pesticide that will be used in crops.²⁶

Consumer awareness on the dangers of pesticides and fertilizers and on the overuse of antibiotics is increasing forcing companies to make changes to the way they do things:

- McDonalds will start globally rolling back use of antibiotics in its chicken products from 2018.²⁷

- In 2015, Costco announced its plan to eliminate the sale of chicken and meat raised with dual-use antibiotics.²⁸
- Walmart has asked suppliers to publicly disclose their progress in cutting antibiotic use for promoting growth in livestock²⁹



Source: Grandview Research. Organic Foods & Beverages Market Analysis and Segment Forecasts to 2020 (2015)



Flowers

The flowers are the part of the tree with fewer uses, however, given the flowers' sweet, honey-like smell, the flowers are used in aromatherapy for a calming and restorative effect



Bark

Neem bark contains spermicidal properties and research is undergoing to approve its potential use as a sexual contraceptive for both women and men



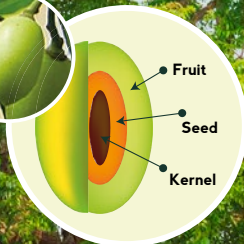
Leaves

Containing most active ingredients found in the seeds but in a much lower concentration, the leaves are considered the most versatile part of the tree. Now used as a pesticide, fertilizer and animal feed, the leaves were originally used as a medicinal tea in Indonesia



Oil

Extracted from the kernels inside the seeds. A single seed may contain up to 50% oil by weight. It is recognized and valued as a safe and effective bio-pesticide for organic farming. The oil has also been widely studied due to its medicinal properties and is also used in a variety of cosmetic products such as creams, soaps and shampoos



Twigs

While used in commercial toothpastes and mouthwashes, twigs have most widely been used in India as brushes for generations



Roots

The roots of a neem tree also have different medicinal properties due to being antiseptic, antibacterial, anti-fungal and germicidal. They are also used as a pesticide and to control fleas and ticks on pets



Cake

After the seeds have been pressed for oil, the resulting by-product is the neem cake. Neem cake is used across the agriculture sector as an effective pesticide, fertilizer and anti-bacterial, anti-fungal organic alternative to antibiotics in livestock



The Neem Tree
Azadirachta Indica

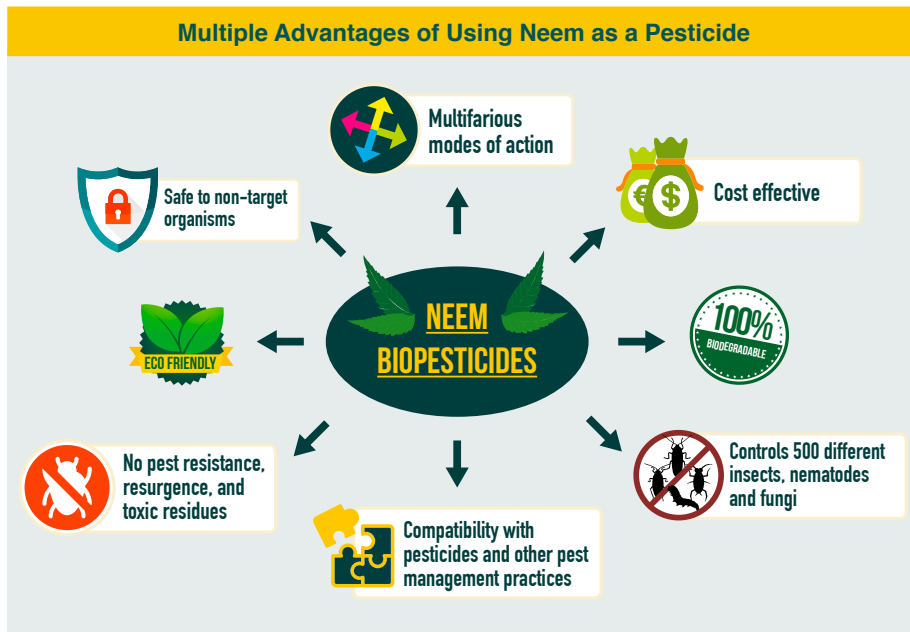
Neem, named 'Arista' in Sanskrit, means 'perfect, complete and imperishable'

Azadirachtin – The Organic Alternative for Crop Protection

Neem offers an inexpensive and nontoxic alternative to a number of synthetic pesticides. Effective against 500 different types of insects, nematodes and fungi, neem oil acts on the hormonal systems of pests and therefore does not lead to the development of resistance in future generations. The ability to use neem as a pesticide that doesn't damage the soil will have a long-term positive impact on farmers and their farmland.

Azadirachtin, neem's main chemical compound, is found exclusively in the neem tree and holds the secret to sustainable crop protection in the 21st Century.

Valued at **\$3.3 billion** in 2017, the global bio-pesticide market is forecast to reach \$9.5 billion by 2025, with a CAGR of **13.9%**. North America will hold the largest market share.³⁰



Cake – An Organic By-Product that Nourishes Soil

After the seeds are crushed to produce the oil, the result is neem 'cake'. This contains the nitrogen, phosphorous and potassium for plant development and soil nourishment as well as water retention.

Neem cake, used as a fertilizer, has several benefits for both mankind and the environment:

- **Non pollutant**
- **Non toxic**
- **No human health risk**
- **No environmental contamination**
- **Nourishes soil**
- **Does not reduce biodiversity**
- **Positive environmental & social financial**

Source: The Primal Group (2015)



Neem cake can also be fed to livestock for disease control.
Using neem, farmers reduce the number of antibiotics given to cattle avoiding any potential resistance to build up

Neem's Potential in Safeguarding Health

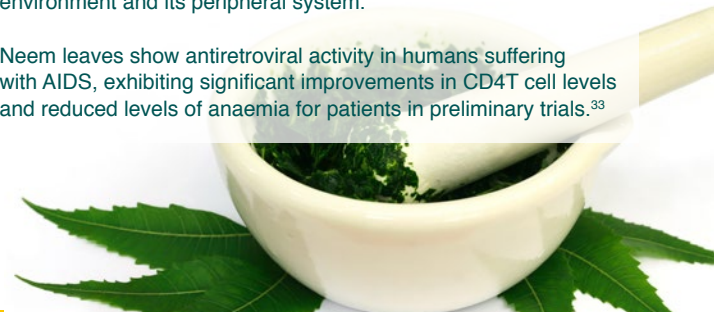
A solution to the mosquito's increasing resistance

- Malaria was responsible for an estimated 584,000 deaths worldwide in 2013³¹
- There is a growing resistance to anti-malarial medicines and insecticides
- Neem is a proven and cost effective solution to malaria that works by deterring the mosquito breeding process



A Herbal Remedy

- Neem oil is an organic anti-fungal and anti-bacterial that is effective against a variety of viruses
- Neem can be an effective cure for diabetes. For non-ketonic and insulin-sensitive diabetic patients, neem leaf extracts can reduce their insulin requirements by 30-50%³²
- The Department of Biochemistry and Microbiology from Rochester's Mayo Clinic have been researching neem since 2013. Instead of targeting the cancer cells directly, a protein – Neem Leaf Glycoprotein (NLGP) – modulates cells that are responsible for providing immunity to the body present within the tumor environment and its peripheral system.
- Neem leaves show antiretroviral activity in humans suffering with AIDS, exhibiting significant improvements in CD4T cell levels and reduced levels of anaemia for patients in preliminary trials.³³



Current Neem Products

Neem-sourced products are offered by an increasing number of health and beauty suppliers, including L'Oréal, the world's largest cosmetics company and the parent of Garnier. Other well known brands offering neem-sourced products include Avon, Dr. Hauschka and A.Vogel.



Primal's Brand



Not Enough Grown - The Supply and Demand Scenario

Though a hardy tree with deep roots and fast growing (up to four meters a year)³⁴ commercial cultivation of neem is fragmented. Indigenous to India, it thrives in semi-arid regions. Carried across the globe by Indian emigrants, the tree is now distributed across Africa, the Middle East and Australia. It was introduced in China relatively lately, with commercial plantations there only commencing in 1999³⁵. Neem's strong environmental and agricultural benefits and on-going research into its medicinal possibilities make a persuasive case for increasing exposure to this plant and it has an important role in checking soil erosion and subsistence, particular problems in Africa and China.

Brazil's agricultural competitive advantages

- *A unique climate allowing for more than one harvest every year*
- *The potential to double the country's current crop area*
- *Abundant water – three times the supply of the US*
- *Technology savvy producers and agro industries*
- *Varied soils and climates encourage product diversity*

Source: Economist Intelligence Unit Limited. *The Global Power of Brazilian Agribusiness*. (2010)

Neem is ideally suited for cultivation in Brazil; the country is a top three producer of multiple crops and soft commodities, and the world's largest exporter of beef and poultry. The value of the country's agricultural exports increased six times between 2000 and 2013 and by 2020 Brazil is forecast to become the world's largest exporter of agricultural and food products³⁶.

Neem's effectiveness as a bio-pesticide and fertilizer will be invaluable supporting the growing market for natural foodstuffs perceived as more healthy. In the US, organic food sales have expanded from a 1% market share in 1997 to near 5% by 2014. The sector continues to exhibit double-digit annual growth, far outstripping the 3% annual growth being experienced across the total food sector³⁷.

Brazil's population of 200 million presents a potentially lucrative market for neem. The country's middle or upper classes, defined as those earning annual incomes between Brl 23,000 and Brl 44,000 (\$5,750 to \$11,000) comprise 64% of the total population and are avid consumers³⁸. Expenditure on higher quality food and health care will open up new localized markets for the crop.

The Competitive Advantage of Being Ahead of the Peak

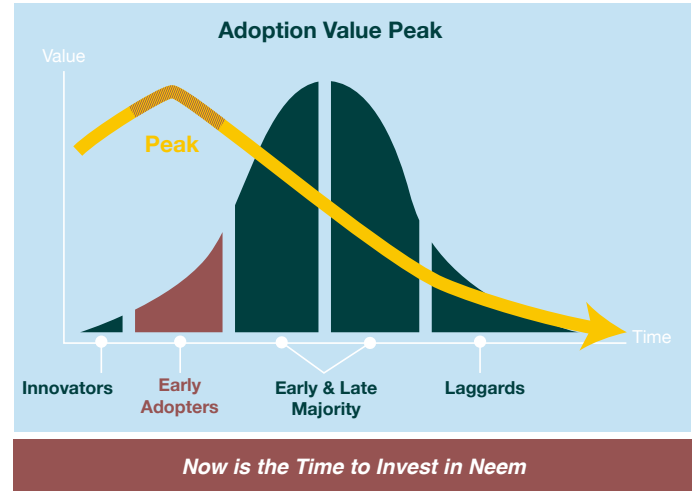
The period of maximum value and reward for owners in the investment cycle of a product is at the early adopter stage, as shown in the chart on this page. Investors in this segment can avoid much of the uncertainty, time and financial resources in getting any idea – even the good ones, beyond the concept stage. They participate once the concept is proven, and on attractive terms.

With a low investment profile but considerable potential, neem offers the opportunity for investors to participate at the peak point of the adoption value peak, allowing them to maximize the returns likely to accrue.

Why an Investment in Neem is Highly Attractive:

- Only discovered 60 years ago in the West, there is little commercial cultivation of neem globally at a time of fast growing applications for its diverse range of products.
- Every part of the tree, from the tip of the roots to the branches and flowers above the ground, has commercial applications and value.
- Demand for this ethical and environmentally safe product will be driven by increasing consumer preference for naturally reared produce and a tighter legislative environment on the use of synthetic pesticides, fertilizers and the overuse of antibiotics.

- The Primal Group's plantations are based in Brazil, a country forecast to become the world's biggest food exporter by 2020³⁹ and a key beneficiary of the adjustments underway in global agriculture



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