

World Rice Fortification Initiative

a part of The Wright Group's Global Wellness Project



Enriching our world for over 100 years.



theWrightGroup[™]

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wright history

A culture of rice innovation
built on over 100 years of tradition

The Wright Group has long operated in an area rich in rice tradition. With a history spanning over 100 years, the Wright name has come to stand for quality and commitment to the golden grain that feeds our world. Around the turn of the 20th century, rice pioneer Salmon (Sol) Lusk Wright worked tirelessly to develop domestic rice seeds that would revolutionize the industry. From the start Wright was interested in improving the quality of the rice he raised. He put into practice methods of cultivation that he had learned from his own experimentation: improved techniques of selecting seed, irrigation, levee construction and controlling red rice and other undesirable grasses.

One historic night in 1907 Wright opened the hull of a grain of rice, and there was the perfect grain – fully formed, hard, crystalline clear. That single grain of rice was to become the parent of the seed that determined the destiny of the rice industry in the US. Wright named his newly developed variety of rice 'Blue Rose'. Wright's contribution to rice farming quickly became the focus of the entire rice industry.

Farming techniques clearly ahead of their time turned to fortification methods ahead of their time. A dedication to propagating the finest qualities and yields in his grain varieties has turned to a drive in creating the very best fortified rice products for use in today's essential global nutrition programs.

For generations, rice has been a way of life for our company. To this day, The Wright Group leads the industry with its development of rinse resistant rice premixes and standardized enrichments. Let our long-held tradition, dedication and commitment to our industry help you to produce the best rice product possible for your customers.

1890

Sol Wright
relocates to
Louisiana



1907

Sol wins
numerous
awards
for rice
innovations



1956

Salmon Lusk
Wright, Jr.
founds Wright
Laboratory



1957

S.L. Wright III
begins blending
custom nutrient
premixes



2004

S.L. "Sam"
Wright IV
acquires
company



2012

Wright opens
new offices in
Shanghai,
China &
Sydney, Australia



Sol Wright
Founder of The Wright Group



the need for fortified rice

moving against malnutrition



Globally, 925 million people do not have enough to eat - more than the populations of USA, Canada and the European Union combined. 98% of the world's undernourished people live in developing countries. Further, two-thirds of the world's hungry live in just seven countries: Bangladesh, China, the Democratic Republic of the Congo, Ethiopia, India, Indonesia and Pakistan.

Where is hunger the worst?

- Asia and the Pacific: 578 million people²
- Sub-Saharan Africa: 239 million people²
- Latin America and the Caribbean: 53 million people²
- Near East and North Africa: 37 million people²
- Developed countries: 19 million people²

Throughout the world, lesser-developed countries rely more heavily on rice as their primary food staple. The most impoverished nations import much more rice than the average food-importing countries. Food-deficient nations are importing much more rice than the world's more highly-developed countries. Fortified rice has helped to counter the problem of malnutrition in many rice-eating countries. Still, most of the countries that need the enriched rice most don't have it.

“Rice is the dominant staple food crop of approximately half of the population worldwide. Micronutrient deficiencies of public health significance are all widespread in most high rice-consuming countries and rice fortification has the potential to help aid vulnerable populations that are currently not reached by wheat or maize flour fortification programs”

- *World Health Organization - 2012*

Sources:

1. FAO News Release, 2010
2. FAO FAQs on Hunger, 2010

ironrice®

iron rice fortification

The international initiative to provide essential nutrition through rice fortification is continuing to expand. Emerging countries in Southeast Asia, Central and South America and Africa are employing this fortification strategy through governmental food agencies and authorities. The Wright Group has developed Iron Rice®, a natural grain-based iron fortificant, as a part of this global strategic initiative.

Iron deficiency or anemia is a concern because it can:

- Iron deficiency can delay normal infant motor function (normal activity and movement) or mental function (normal thinking and processing skills).
- Iron deficiency during pregnancy can increase risk for small or early (preterm) babies. Small or early babies are more likely to have health problems or die in the first year of life than infants who are born full term and are not small.
- Anemia can cause fatigue that impairs the ability to do physical work in adults. Iron deficiency may also affect memory or other mental function in teens.

IronRice® is made from a blend of premixed iron-fortified rice grains with ordinary rice and can be cooked like ordinary rice. IronRice® is created with the most bioavailable iron form, ferrous sulfate. Consumption of IronRice® helps build healthy red blood cells, improve physical and mental performance, prevents anemia and strengthen the body against infection.



IRONRICE
IRON RICE FORTIFICATION

ironrice® properties

- Fortified Rice Claim: 6.3 mg/100g (~1/3 US RDI)
- Rice Grain: Long, Whole, Medium or Any Other Variety
- Iron Source: Ferrous Sulfate
- Iron Content: 25.2 g/kg
- Addition Rate: 1:400 ratio

Iron Source	%FE	Relative Bioavailability	Relative Cost [(\$/kg)/(%/fe)]
Ferric Ammonium Citrate	17	107	0.41
Ferrous Lactate	19	106	0.84
Ferrous Sulfate, Heptahydrate	20	100	0.25
Ferrous Sulfate, Monohydrate	32	100	0.05
EDTA, Dihydrogen Ferrous Salt	14	99	1.07
Ferrous Gluconate	12	97	0.67
Ferrous Fumarate	32	95	0.17
Ferrous Succinate	18.5	92	0.51
Ferric Sulfate	27	83	0.15
Ferric Pyrophosphate	24	45	0.74
Reduced Iron	97	37	0.03
Ferric Orthophosphate	28	14	0.16
Ferrous Bisglycinate	20	--	1.50

relative bioavailability



vit-a-rice®

magnifying the value of vision

Vitamin A deficiency is the leading cause of disease and death among citizens of third world countries. The lack of Vitamin A in daily diets often leads to crippling childhood blindness and poor immunity. To combat this deficiency, The Wright Group developed Vit-A-Rice®, a major breakthrough in the effort to supply Vitamin A in impoverished societies worldwide. Using a proven rinse-resistant grain technology, Vit-A-Rice®, delivers adult recommended daily intake (RDI) of essential Vitamin A. Vit-A-Rice® is also fully customizable to fortification profiles required by various international nutrition regulation and food aid agencies.

vit-a-rice® properties

- Fortified Rice Claim: 1500 IU/100g (~1/3 US RDI)
- Vitamin A Source: Vitamin A Palmitate
- Rice Grain: Long, Whole, Medium or Any Other Variety
- Vitamin A Content 12,000 IU/g
- Addition Rate 1:800

According to the World Health Organization (WHO)[^]

An estimated 250 million preschool children are vitamin A deficient and it is likely that in vitamin A deficient areas a substantial proportion of pregnant women are vitamin A deficient.

An estimated 250,000 to 500,000 vitamin A-deficient children become blind every year, half of them dying within 12 months of losing their sight.

For children, lack of vitamin A causes severe visual impairment and blindness, and significantly increases the risk of severe illness, and even death.



[^]Source: WHO (2012) www.who.int/topics/vad



learn more about our line of rice products
www.thewrightgroup.net/wright_rice

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nutrarice®

natural grain-based fortification

The Wright Group developed NutraRice® to deliver region-specific adult recommended daily intake (RDI) of essential nutrients, including Vitamins A, E, B1, B3, B12, Folic Acid, Zinc, Iron and Selenium at a lower addition rate than synthetic grains. Utilizing proven rinse-resistant grain technology, NutraRice can be created to carry multiple nutrients including the very unstable water soluble Vitamin B1. NutraRice® is stable under hot and moist storage conditions.

“Adequate vitamin and mineral nutrition is required for optimal growth and development of children and for the maintenance of adequate health and nutrition of adult populations.”

- *Howson 1998 National Academy Press*

NutraRice® is designed for delivery on a base of long-grain, medium grain or second-head rice grains according to customer requirements. Color and bulk density is similar to natural grains, eliminating segregation when combined with unfortified grains. NutraRice® is designed to maintain nutritional value even after cooking. Further, the fortification technology behind the NutraRice® product permits customization to fortification profiles required by various international food regulations and aid agencies.



wright tech

advantages of using wright technology

The Wright Group has been a pioneer in producing fortified rice premixes for over 55 years and has a current production capacity of 40,000 MT per year.

We are fully equipped to fortify any variety of rice to meet the nutritional needs of developing nations on a global scale.

These capabilities include:

- Long Grain
- Medium Grain
- Broken Grain
- Parboiled
- Instant

Wright's technology is unique in that it will help increase concentration ratios from 1:200 to 1:400. This ratio can be increased to 1:800 for Vit-A-Rice® fortifications. Natural rice grain IronRice® Premix and NutraRice® Premix have the same bulk density as clean white rice & will not separate after packaging whereas the extruded grains of competitors are lighter in weight (lower bulk density) & have been known to separate after packaging. When stored properly, Wright IronRice® and NutraRice® Premixes are stable for at least two years.

"Among the several proven approaches available for addressing the problem of micronutrient malnutrition, fortification is currently the most cost-effective."

*- Jere H. Haas & Dennis D. Miller,
Cornell University*

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