

III. Application Guidelines

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NutriSmart is an eco-fertiliser containing >30% organic matter and various strains of yeast. Unlike traditional chemical fertilisers, NutriSmart contains only negligible amounts of soluble NPK. As such, the optimal dosage and application method is distinctly different from that of chemical fertilisers.

III.1 Dose rate

III.1.1 Dose Rate of NutriSmart

NutriSmart is generally applied as a basal fertiliser. The suggested dosage for different crops depends on:

1. The nutrient requirements of the specific crops;
2. The crop yield;
3. Fertiliser usage in normal practice;
4. Environmental conditions;
5. Time between applications;
6. The distribution or coverage rate of the granules after application.

Based on recent trial data, the suggested NutriSmart dose rate ranges from 250kg/ha to 1200kg/ha, depending on the type of the crops planted. For example, vegetables normally have a high nutrient uptake, so a relatively high dosage of NutriSmart is suggested. The recommended dose rate of NutriSmart for each type of crop is tabulated in Section III.1.3.

III.1.2 Dose Rate of Supplement (Inorganic Fertiliser)

Specific amounts of organic or inorganic fertilisers are required as a basal or side-dressing supplement for NutriSmart. Only an organic supplement should be used for organic farming. The purpose of the supplementary fertiliser is to provide a small amount of nutrients for the initial growth of the yeasts immediately after application, and also to meet the early or intermediate nutrient requirements of the crops before NutriSmart has become fully active.

These supplementary nutrients should be applied according to soil type. For example, for sandy soil, organic supplements should be considered. If an inorganic fertiliser is used as supplement in sandy soil, it is highly recommended to split-apply the supplement in order to avoid potential chemical leaching.

In some types of crops and at certain growth stages, additional side-dressing of supplementary nutrients may also be required to meet the specific nutrient requirements for crop growth and development.

Nitrogen (N) is one of the most important supplements for NutriSmart. The readily available form of N (i.e., inorganic fertiliser in the form of nitrate, ammonium and/or urea, etc) is highly recommended for use as a supplement. P and K supplements can also be selectively applied to meet the specific needs of the crops. Recommended types of supplementary inorganic fertilisers are listed in Table 8.

Table 8. Recommended types of supplementary inorganic fertilisers

Supplementary nutrients	Inorganic fertiliser	NPK
Nitrogen, N	Ammonium nitrate	33-34% N
	Ammonium sulphate	21% N
	Ammonium carbonate	15-17% N
	DAP	18-21% N
	MAP	11-13% N
	Calcium nitrate	15.5% N
	Urea	46% N
	Potassium nitrate	13% N
Phosphoric oxide, P ₂ O ₅	TSP	44-48% P
	SSP	17-20% P
	DCP	35-52% P
	DAP	46-53% P
	MAP	48-52% P
Potash, K ₂ O	KCl or MOP	60-62% K
	K ₂ SO ₄ or SOP	48-52% K
	Potassium nitrate	45%
NPK	Most compound fertilisers, e.g. 15-15-15 etc.	Varied

High concentrations of NPK, especially N, in the soil will inhibit the activities of the yeast in NutriSmart. Therefore, the dose rate of the supplementary fertiliser must be carefully monitored. In particular, the N level of the supplementary fertilisers in the soil must be maintained below 180ppm, otherwise, the enzymatic activity of the nitrogenase, and hence the nitrogen fixation, will be diminished.

The suggested dosage of supplementary fertiliser is the amount that can provide:

N = 20- 80kg/ha

P = 10- 40kg/ha

K = 10- 40kg/ha

Example: If an inorganic fertiliser (e.g., 15-15-15) is used as a supplement, the maximum amount of supplement used should be 133-533kg/ha.

The dosage of the supplementary fertiliser must be adjusted carefully according to the application method used. For example, if a furrow or hole application method is used, the dosage of the supplementary fertiliser should be reduced.

III.1.3 Recommended Dose Rate of NutriSmart and Supplement

Table 9. Suggested dosage of NutriSmart and its supplements according to crop

Crop	Growth Period	NutriSmart	Supplement	Remarks
Vegetables				
Short growing period (e.g., lettuce, spinach)	30 – 80 days	750 – 900 kg / ha	20-80kg/ha N (optional: 10-40kg/ha P and K) or 20-30% NPK used in normal practice	Apply some topdressing supplements as needed.
Long growing period (e.g., broccoli, celery, cauliflower)	80 – 120 days	750 – 900 kg / ha		
Cucurbits (e.g., pumpkin, water melon, cucumber)	80 – 120 days	800 – 1200 kg / ha		
Solanaceous (e.g., tomato, eggplant, capsicum)	80 – 180 days	800 – 1200 kg / ha		Apply some topdressing supplements as needed. Re-apply after 4-6 months as needed.
Roots & Tubers				
Roots & Tubers (e.g., potato, carrot, onion)	90 – 180 days	900 – 1200 kg /ha	20-80kg/ha N (optional: 10-40kg/ha P and K) or 20-30% NPK used in normal practice	Apply some topdressing supplements as needed.

Fruits & Nuts				
Fruit trees (e.g., apple, citrus, banana, stone fruit, grapes)	Perennial	0.5 – 6 kg / tree / application or 600-900 kg/ha/application	20-40kg/ha N (optional: 10-20kg/ha P&K) or 20-30% NPK used in normal practice*	Apply twice a year. Apply some topdressing supplements as needed.
Nuts (e.g., hazel nut, macadamia)	Perennial	0.5 – 6 kg / tree / application or 600-900 kg/ha/application		
Oil & Sugar				
Oil palm	Perennial	700 – 900 kg/ha	20-40kg/ha N (optional: 10-20kg/ha P and K) or 20-50% NPK used in normal practice*	Apply twice a year. Apply some topdressing supplements as needed.
Sugar cane (plant and ratoon)	Up to 5 years	700 – 900kg / ha		Split application as needed. Apply some topdressing supplements as needed.
Turf				
Turf	-	350 – 900 kg/ha	12-25kg/ha N, 25% K or 30-70% NPK used in normal practice	Topdressing 30-70% of normal practice is recommended .

Grains				
Cereals – rice	~120 days	250 – 500 kg / ha	23-46kg/ha N or NPK (basal)	Topdressing 23-46kg/ha N or NPK once or twice.
Cereals – wheat, barley	120-180 days	750 – 900 kg / ha	20-80kg/ha N (optional: 10-40kg/ha P and K) or 20-30% NPK used in normal practice	
Natural Fibres				
Cotton	180 days	900 – 1200 kg / ha	0-40kg/ha N (optional: 10-20kg/ha P and K) or 20-30% NPK used in normal practice*	Apply some topdressing supplements as needed.
Flowers & Ornamentals				
Potted (e.g., annuals, roses, camellias, azaleas, bulbs)	-	0.5 – 1 g / pot diameter	20-80kg/ha N (optional: 10-40kg/ha P and K)	If necessary, reapply after 4-5 months plantation.
Field (e.g., annuals, perennials, shrubs, decorative flowers)	-	80 – 120 g /sq. m	20-80kg/ha N (optional: 10-40kg/ha P and K) or 20-40% NPK used in normal practice	

Others				
Chinese herbs	-	900 – 1200 kg / ha	20-80kg/ha N (optional: 10-40kg/ha P and K)	
Tobacco	-	900 – 1200 kg / ha	20-80kg/ha N (optional: 10-40kg/ha P and K)	

III.1.4 Dose rate of NutriSmart for organic farming

NutriSmart has been certified for organic farming in the USA, Canada, Australia, and Thailand. Since inorganic fertilisers cannot be used in organic farming, inorganic fertilisers cannot be applied as supplements. According to recent trial data, the use of higher dosages of NutriSmart or the use of organic fertilisers as supplements can also considerably improve organic crop yields.

Organic fertilisers, such as manure and compost, can increase the organic and moisture levels of the soil, which provides an ideal environment for NutriSmart's yeast growth. However, organic fertilisers such as manure must be fully fermented before application in order to avoid fermentation in the soil, which will increase soil temperature.

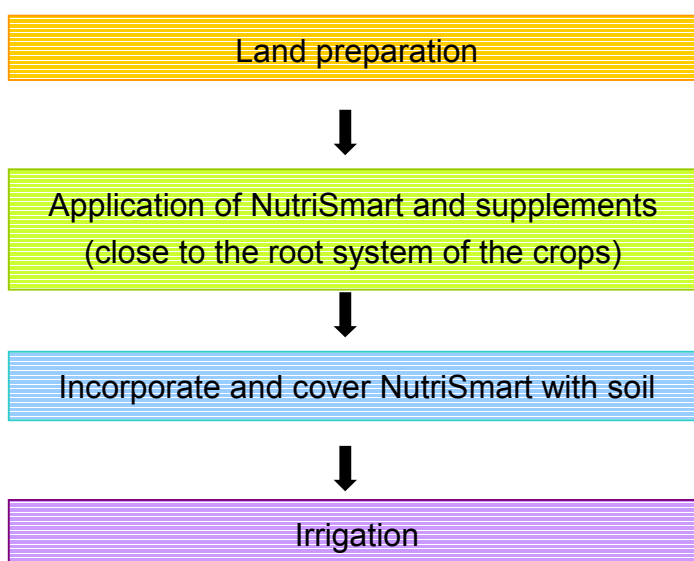
III.2 Application methodology

Since NutriSmart is in the form of solid granules, traditional application methods for inorganic fertilisers can be used. However, some specific application rules and precautions must be followed.

III.2.1 General Application Rules and Precautions

Generally, after land preparation, NutriSmart and its supplements can be applied to the soil. Then, incorporate NutriSmart with the soil and make sure the granules are covered and close to the root system of the crops. The land must be irrigated immediately after the application of NutriSmart.

The 4-step application procedure is shown below:

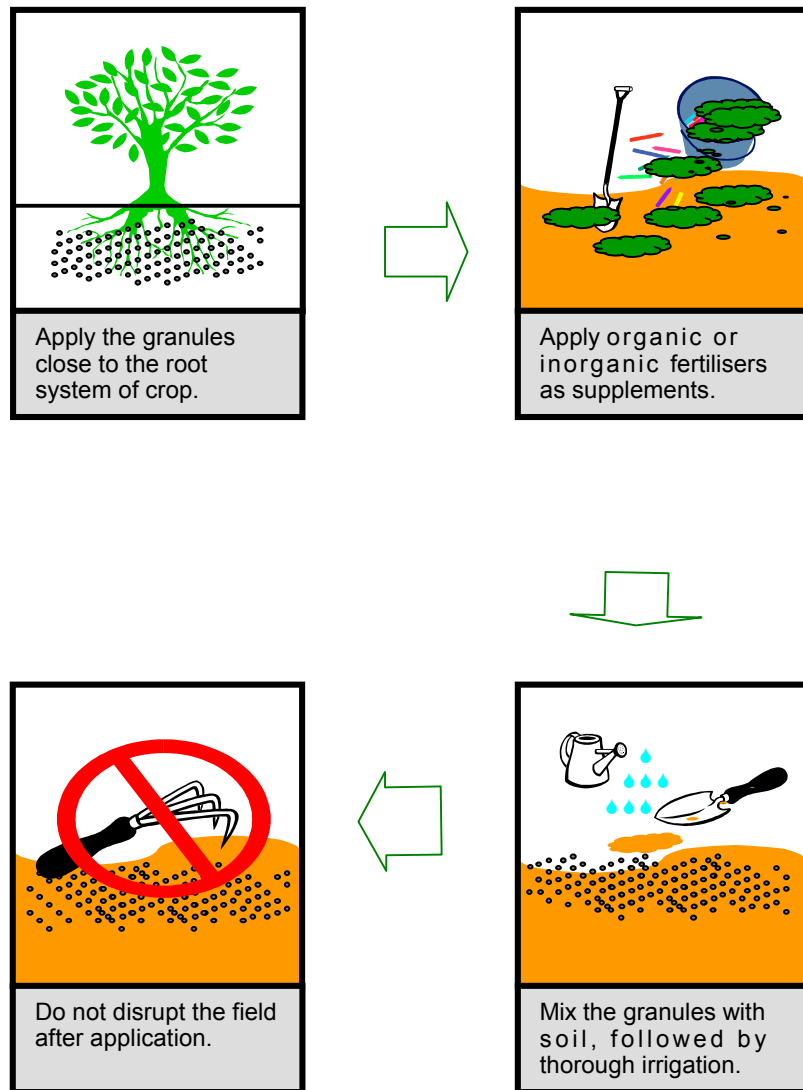


The ability of NutriSmart to provide NPK to the crops is dependent on both the correct application method and the maintenance of the field during the crop's growth and development. Special attention must be paid before and after the application of NutriSmart to ensure its efficacy. These precautions include:

1. Sufficient irrigation provided immediately after every NutriSmart application.
2. No tilling of the soil after application since this action will disturb the soil micro-environment developing between the crop and NutriSmart.
3. Careful application of pesticides, as large quantities may inhibit the yeast in NutriSmart.
4. Careful application of nitrogenous fertilisers (<180ppm N or <80kg/ha N).
5. Application of the NutriSmart granules close to the root system of the crop.
6. Supplementation of NutriSmart with an optimal amount of organic or inorganic fertiliser.
7. Reapplication of NutriSmart as required for crops with a growth period longer than

150 days.

NutriSmart's four major application rules and precautions are shown in Figure 2:



NutriSmart granules must be placed close to the root system of the crops. Nitrogen fixation is also inhibited under conditions of high oxygen tension. The soil for NutriSmart application depends on the root system of the crops and the type of soil (Table 11).


Table 11. Depth of NutriSmart for different soil types and root systems.

	Shallow root system	Deep root system
Sandy Soil	5 - 10 cm	5 - 30 cm
Loamy Soil	2- 10 cm	2 - 25 cm

III.2.2 Application Guidelines for Different Types of Crops

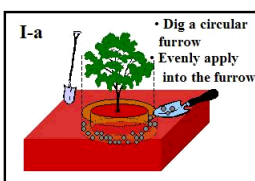
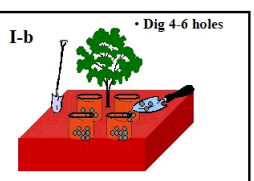
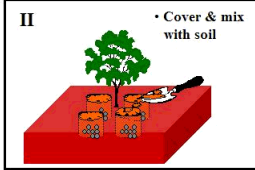
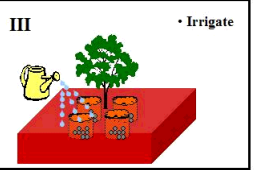
NutriSmart is suitable for most crops and can be applied using a number of methods. The traditional application methods, including broadcasting, band, furrow and hole application, can also be used for NutriSmart. For tree application, hole or furrow application of NutriSmart can be done under the canopy of the tree. In paddy fields, NutriSmart can be applied simply by broadcasting. The outline of the application methods for different crops is shown in Table 12.

Table 12. Application guidelines for different types of crops.


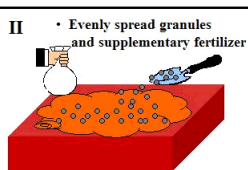
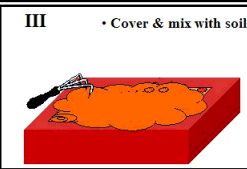
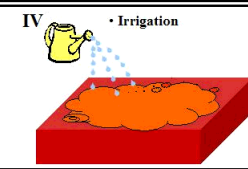


Application Method

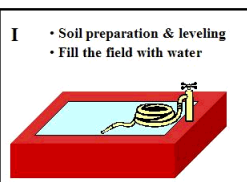
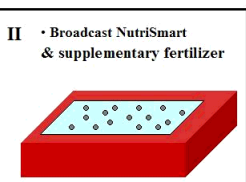
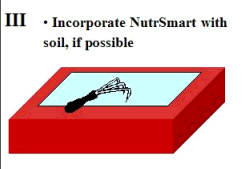
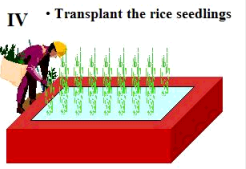
Fruit Tree application

<p>I-a</p>  <ul style="list-style-type: none"> • Dig a circular furrow • Evenly apply into the furrow 	<p>I-b</p>  <ul style="list-style-type: none"> • Dig 4-6 holes
<p>II</p>  <ul style="list-style-type: none"> • Cover & mix with soil 	<p>III</p>  <ul style="list-style-type: none"> • Irrigate


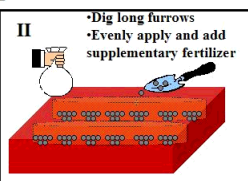
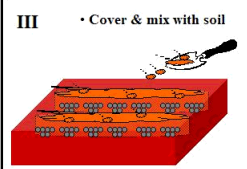
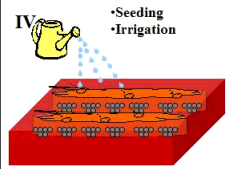
Broadcast application

<p>I</p>  <ul style="list-style-type: none"> • Remove weed • Loosen soil 	<p>II</p>  <ul style="list-style-type: none"> • Evenly spread granules and supplementary fertilizer
<p>III</p>  <ul style="list-style-type: none"> • Cover & mix with soil 	<p>IV</p>  <ul style="list-style-type: none"> • Irrigation


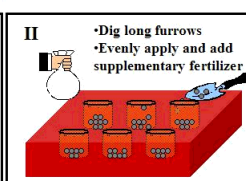
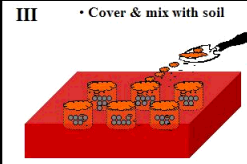
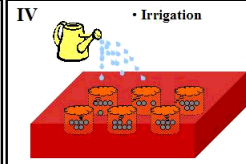
Paddy Rice application

<p>I</p>  <ul style="list-style-type: none"> • Soil preparation & leveling • Fill the field with water 	<p>II</p>  <ul style="list-style-type: none"> • Broadcast NutriSmart & supplementary fertilizer
<p>III</p>  <ul style="list-style-type: none"> • Incorporate NutriSmart with soil, if possible 	<p>IV</p>  <ul style="list-style-type: none"> • Transplant the rice seedlings

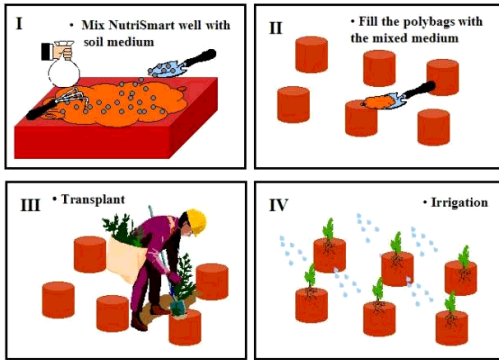
Furrow application

<p>I</p>  <ul style="list-style-type: none"> • Remove weed • Loosen soil 	<p>II</p>  <ul style="list-style-type: none"> • Dig long furrows • Evenly apply and add supplementary fertilizer
<p>III</p>  <ul style="list-style-type: none"> • Cover & mix with soil 	<p>IV</p>  <ul style="list-style-type: none"> • Seeding • Irrigation

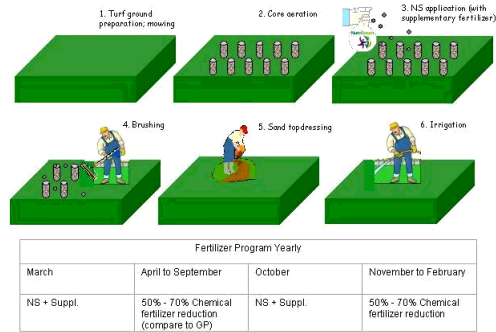
Hole application

<p>I</p>  <ul style="list-style-type: none"> • Remove weed • Loosen soil 	<p>II</p>  <ul style="list-style-type: none"> • Dig long furrows • Evenly apply and add supplementary fertilizer
<p>III</p>  <ul style="list-style-type: none"> • Cover & mix with soil 	<p>IV</p>  <ul style="list-style-type: none"> • Irrigation

Application for Nursery



Application on Turf



(Please refer to the specific guidelines for detailed application methods on individual crops)

III.2.3 Storage and Transportation of NutriSmart

Attention should be paid to the storage and transportation of NutriSmart. These precautions include:

1. Store NutriSmart under cool and dry conditions.
2. Keep NutriSmart granules intact.
3. Keep NutriSmart free from moisture during transportation or storage.
4. Do not store NutriSmart in areas of strong magnetic or electrical field, strong acid, strong alkali or fungicide.

III.3 Specific Guidelines (by Crop)

III.3.1 Golf Turf

Current application guidelines principally refer to the golf course green nursery, tees and fairways. The recommended dosages can also be used as a general reference for golf roughs, or other turf grounds, including sports turf, garden turf, home lawns, etc. The appropriate granule size for this purpose is 2.5 mm ("Turf 250"). A number of new products with smaller granules will also be available soon, it can be used on nursery or putting greens. However, detailed agronomic advice is recommended prior to application.

NutriSmart Dosages:

Basic dosage recommendations are 300-900 kg/ha (6.1 -18.4 lb/1000 sq ft), twice per year. For turf ground with low soil organic matter, lower than 1.0%, higher dosage rate is recommended. Dosage 300-600 kg/ha can be considered if applying on loam soil with higher soil nutrients. A preliminary trial is suggested before large-area applications.

Supplementary Fertiliser:

Supplementary fertilisers are required for NutriSmart applications, most commonly compound chemical fertilisers (NPK). Depending on the availability of phosphorus in the soil or local regulations on phosphorus supplementation, an NK compound fertiliser without phosphorus can also be used. The general dosage recommendation is between 14.7-24.5 kg nitrogen/ha (or 0.3-0.5 lb N/1000 sq ft) per application per month base..

Topdressing Fertilisers:

Due to the low fertility of soils in turf grounds, particularly turf growing on 100% sand beds, fast nutrient leaching often occurs, quickly removing the most crucial soil nutrients after irrigation or rain. Although NutriSmart can help to retain these nutrients, a topdressing fertiliser is necessary to maintain good quality turf with NutriSmart on golf courses. Depending on the existing fertiliser program, topdressings of nitrogen fertiliser on ground treated with NutriSmart can be reduced from 30-70%. The total amount of fertiliser used monthly should not exceed more than 14.7-24.5 kg N/ha (0.3-0.5 lb N/1000 sq ft). For example, if a superintendent uses 0.75 lb nitrogen per 1000 sq ft per month as normal practice, a 60% reduction in chemical fertiliser would mean 0.3 lb nitrogen per 1000 sq ft per month on the NutriSmart-treated plot, or 0.75lb N/1000 sq. ft. every other month.

Application Method and Timing:

NutriSmart needs to be in a soil zone of 5-30 cm (2-15 inches). Basal application procedures are as follows:

1. Core cultivation or aerification, hollow tines or spoons, cleaning debris from ground.
2. Broadcast NutriSmart granules (with supplementary fertiliser as appropriate).
3. Topdress with sand.
4. Brush, or drag mat, .
5. Irrigate with sufficient water.

For warm season grass species turf, the golf course superintendent may use NutriSmart twice a year- as per the current fertiliser program and core scheduel. For cool season species, a Spring fertilisation in April and a Fall fertilisation in September/October is appropriate. The schedule for coring should be decided by the superintendent in accordance with the desired schedule for NutriSmart application.

Special Precautions:

Nutrismart needs to be covered by soil in the depth 5 cm below. It will lost fertility efficiency when granules explore on soil surfaces. Immediate irrigation is required after NutriSmart application. This provides the necessary moisture for the growth of microorganisms, which are crucial to the decomposition of mineral for plant nutrients. However, it should be noted that heavy irrigation after application in areas where the soil is already saturated will hinder NutriSmart's performance.

Do not apply NutriSmart during periods of extreme environmental stress, such as heat, drought, cold weather, or during heavy insect or disease activities.

III.3.2 Potatoes

NutriSmart Dosages:

Basic dosage recommendations are 600-900 kg/ha as basal fertiliser, depending on soil fertility. For sandy soil, a 900 to 1200kg/ha dosage rate may be advisable. In most cases, a supplementary organic or inorganic fertiliser is highly recommended (see below). A soil test or preliminary trial is also recommended before large-scale application.

Supplementary Fertiliser:

Supplementary fertilisers are required for NutriSmart applications. It is highly recommended to use organic or manure fertilisers, or compound chemical fertilisers such as NPK 15:15:15. A single N, P or K fertiliser can also be used as a supplement, depending on the availability of nutrients in the soil and local restrictions. The general rate recommendation for nitrogen is between 40 to 80 N kg/ha, or about 30%-50% of normal practice. Apply the micro-nutrient fertiliser as needed.

Topdressing Fertilisers:

Loss of plant nutrients often happens quickly in sandy soil. This can remove crucial plant nutrients from soils after heavy irrigation or rain. In addition, some crops may need increased quantities of specific nutrients at certain growth stages. This is why topdressing fertiliser has become necessary for NutriSmart applications in such soil conditions and in certain growth stages. Depending on circumstances, however, the topdressing fertiliser in fields treated with NutriSmart can be reduced by some 30-70% in comparison to the normal fertiliser program. This topdressing fertiliser can be broadcast following irrigation or distributed in the irrigation water if it is a liquid chemical fertiliser.

Application Method and Timing:

NutriSmart needs to be in a soil zone of 5-30 cm (2-15 inches). The basic application procedures are as follows:

1. Apply organic fertiliser, if needed.
2. Broadcast or band (minimum 6 inches wide) NutriSmart granules with the supplementary fertiliser.
6. Mix NutriSmart with the soil and plant potato tube.
7. Cover the tube and NutriSmart with soil (some users also practice hilling at this stage).
8. Irrigate with sufficient water.
9. Apply a top dressing supplement if needed

Conditions:

Do not leave NutriSmart on the soil surface. It will easily dry out and be removed by runoff or strong wind, destroying its fertility efficiency.

Special Precautions:

Immediate irrigation is required after NutriSmart application. This provides the necessary moisture for the growth of microorganisms, which are crucial to the decomposition of mineral and plant nutrients. However, heavy irrigation after application is not recommended as this will leach out the supplementary nutrients, which are also necessary for the microorganisms.

Do not apply NutriSmart during periods of extreme environmental stress, such as heat, drought, cold weather, or during heavy insect or disease activities.

If the potato tube is treated with a fungicide, make sure NutriSmart does not come into direct contact with the treated tube.

III.3.3 Sugarcane

NutriSmart Dosages:

Basic dosage recommendations are 600-900 kg/ha as a basal fertiliser, depending on soil fertility. In most cases, a supplementary organic or inorganic fertiliser is highly recommended (see below). A soil test or preliminary trial is also recommended before large-scale application.

Supplementary Fertiliser:

Supplementary fertilisers are required for NutriSmart application, as Sugarcane has a long growing season. It is highly recommended to use organic or manure fertilisers, or compound chemical fertilisers such as NPK 15:15:15. A single N, P or K fertiliser can also be used as a supplement, depending on the availability of nutrients in the soil and local restrictions. The general rate recommendation for nitrogen is between 40 to 80 N kg/ha, or about 30% of normal practice. Apply the micro-nutrient fertiliser as needed.

Topdressing Fertilisers:

In general, topdressing fertilisers are applied within the first three months of the growing season. One or two topdressings may be needed for sugarcane. Topdressing fertiliser has become necessary for NutriSmart applications in certain growth stages. Depending on circumstances, however, the topdressing fertiliser in fields treated with NutriSmart can be reduced by some 50-70% in comparison to the normal fertiliser program. This topdressing fertiliser can be broadcast following irrigation or distributed in the irrigation water if it is a liquid chemical fertiliser.

Application Method and Timing:

NutriSmart needs to be in a soil zone of 5-30 cm (2-15 inches). Basic application procedures are as follows:

Plant cane:

1. Apply organic fertiliser, if needed.
2. Broadcast NutriSmart granules with the supplementary fertiliser.*
3. Mix NutriSmart with the soil and sugarcane seed.
4. Cover the seed and NutriSmart with soil (some also practice hilling at this stage).
5. Irrigate with sufficient water.

* NutriSmart can also be applied before hilling, after steps 2 to 5.

Ratoon cane:

1. Clean up the field.
2. Band (about six inches wide) NutriSmart and the supplement on both sides of the stool, about six inches deep.
3. Cover the fertiliser with soil.
4. Irrigate with sufficient water.

Conditions:

Do not leave NutriSmart on the soil surface. It will easily dry out and be removed by runoff or strong wind, destroying its fertility efficiency.

Special Precaution:

Immediate irrigation is required after NutriSmart application. This provides the necessary moisture for the growth of microorganisms, which are crucial to the decomposition of mineral and plant nutrients.

Do not apply NutriSmart during periods of extreme environmental stress, such as heat, drought, cold weather, or during heavy insect or disease activities.

Do not apply fungicide at the same time as NutriSmart or within 72 hours of NutriSmart application.

III.3.4 Rice

Transplanted Rice

Current application methods are principally based on observations from rice trials in the Philippines. Unpublished data has shown that incorporation of NutriSmart with the soil is not necessary for transplanted rice, as the transplanting action effectively pushes the NutriSmart granules into the soil. However, if the facility and/or manpower is available, incorporation of NutriSmart with the soil is still recommended, in order to avoid any unexpected circumstances by which make the granules are not covered by the soil.

NutriSmart Dosages:

The dosage recommendations are 250 – 500 kg/ha, one basal application per planting. An inorganic supplement is necessary when applying NutriSmart in this dosage range. For organic rice, a higher dosage of NutriSmart 700-900 kg/ha should be used, supplemented with organic fertilisers as recommended.

Supplementary Fertiliser:

Supplementary fertilisers are necessary for NutriSmart application. 50kg/ha urea or equivalent compound fertiliser (with an equal amount of N) is recommended to use as a basal supplement.

Topdressing Fertilisers:

Another 50kg/ha urea or equivalent compound fertiliser must be applied at 30 DAT (Days After Transplant) or at the panicle initiation stage. An optional 50kg/ha urea or equivalent compound fertiliser can be applied at 60 DAT, or at the flowering stage if this is economically feasible. When available, foliar fertilisers can be applied before the harvest at ~70 DAT.

Application Method and Timing:

1. Land preparation and levelling.
2. Fill the land with water.
3. Broadcast NutriSmart granules and supplements.
4. Transplant rice seedlings.
5. Topdressing at 30 DAT and 60 DAT(optional).

(Apply pesticide and herbicide as per normal practice)

Conditions:

This application method is designed for tropical climates and conditions.

Direct-seeded Rice

Direct-seeded rice has become more and more common in many Southeast Asian countries, including Vietnam, Malaysia, Thailand, Indonesia and the Philippines. Based on studies performed in the Philippines and Indonesia, NutriSmart can be applied as a basal or post-planted fertiliser for direct-seeded rice cultivation. Incorporation of NutriSmart granules with the soil for basal application is necessary in order to provide adequate moisture to the microbes in NutriSmart. Improper application of NutriSmart may affect its performance. Incorporation is not required for post-planted application of NutriSmart.

NutriSmart Dosages:

The dosage recommendations are 250 – 500 kg/ha, one basal application per planting. If NutriSmart is applied at base, no supplement is required. If a post-planted application method is used, an inorganic supplement at 50kg/ha urea or an equivalent compound fertiliser (with an equal amount of N) is necessary. For organic rice, a higher dosage of NutriSmart at 700-900 kg/ha is recommended, supplemented with organic fertilisers.

Topdressing Fertilisers:

Chemical fertilisers at 50kg/ha urea or an equivalent compound fertiliser (with an equal amount of N) are recommended for application at 7-15 DAS (Day After Seeding). If a post-planted application method is used, NutriSmart can be applied together with these chemical supplements.

Another 50kg/ha urea or an equivalent compound fertiliser must be applied at 40-45 DAS, or at the panicle initiation stage. An optional 50kg/ha urea or equivalent compound fertiliser can be applied at 60-65 DAS or at the flowering stage if this is economically feasible. When available, foliar fertilisers can be applied before the harvest, at ~70 DAT.

Application Method and Timing:

a. Basal application of NutriSmart

1. Land preparation and levelling.
2. Broadcast NutriSmart granules.
3. Direct seeding of rice.
4. Topdressing at 7-15 DAS.
5. Topdressing at 40-45 DAS and 60-65 DAS (optional).
(Apply pesticide and herbicide as per normal practice)

b. Post-planted application of NutriSmart

1. Land preparation and levelling.
2. Direct seeding of rice.
3. Broadcast NutriSmart granules and supplement at 7-15 DAS.
4. Topdressing at 40-45 DAS and 60-65 DAS (optional).
(Apply pesticide and herbicide as per normal practice)

Conditions:

This application method is designed for tropical climates and conditions.

Special Precautions:

The topdressings of 50kg/ha urea are critical. We strongly advise farmers to follow these application guidelines.

III.3.5 Trees

Current NutriSmart experience is focused on fruit trees. The age of the tree is one of the most important factors in determining the appropriate dosage of NutriSmart. While NutriSmart dosages are generally specific to each individual tree, dosages here will also be provided in unit areas, e.g. ha and acres, to facilitate machinery application on large plantations, .

NutriSmart Dosages:

Basic dosage recommendations for trees below seven years of age are 0.5 – 6kg/tree, twice per year. Exact dosage depends on the age of the tree, type of fruits or products and the application method. Trees over seven years tend to uptake nutrients from fertilisers at a very low rate, so these trees may show no distinct response to higher doses of NutriSmart. As a rough guide, 6kg/tree can be used for these trees.

For large tree plantations, the recommended dose rates for trees are:

1-10 years old – 70 to 200 lbs/A, (80 to 250 kg/ha), once in the spring.

>10 years old – 360 to 800 lbs/A, (400 to 900 kg/ha) once in the spring.

These dose rates are based on data from the USA. The dose rates may be adjusted according to the population of trees, i.e., number of trees per unit area.

Supplementary Fertiliser:

Supplementary fertilisers are required for NutriSmart application. Both organic and inorganic fertilisers are recommended as supplements. For inorganic fertilisers, the general recommendation for nitrogen is between 20-40 N kg/ha for one application. P and K fertilisers can also be applied at 10-20kg/ha, depending on the trees' specific nutrient requirements.

Topdressing Fertilisers:

Topdressing NPK fertiliser at 20-30% of standard practice is optimal. Higher dosages of specific nutrients can be topdressed to provide special nutrient requirements for some trees. For example, a higher concentration of K can be supplemented for banana trees.

