New Japanese Plastic Coated Fertilizer Shows Promise

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Nutricote is one of the newest controlled release fertilizers being used by growers in Europe. Manufactured by Chisso-Asahi Co. of Tokyo, Japan, it is currently distributed in Europe by Hasin Marketing BV of the Netherlands. Nutricote is not yet commercially available in the United States. Hasin Marketing is seeking distributors.

Nutricote is made by using high quality fertilizers and coating them with a polyolefin resin. The release rate of the fertilizer depends on the kind of resin used and the amount of release controlling additive (RCA) used.

The RCA determines the porosity of the plastic coating. The greater the amount of RCA the more quickly is the fertilizer made available. The RCA is directly affected by temperature; warmer temperatures cause a more active release rate. Nutrient release from Nutricote is not affected by media pH, amount of soil moisture present, rainfall or irrigation, presence of or amount of bacteria or other soil microflora or type of growing medium.

There are five types of Nutricote: 100, 140, 180, 270 and 360. The number refers to the number of days over which the fertilizer is released at a controlled rate. A single analysis 14-14-14 fertilizer is being offered, and other analyses are being developed.

The objective of these studies was to evaluate the performance of Nutricote Type 100, 14-14-14 analysis on the growth of potted chrysanthemums. Nutricote was compared with a standard liquid fertilization program and 100-day Osmocote 14-14-14 analysis fertilizer. The Nutricote fertilizer was supplied by Hasin Marketing, B.V. Rijswijk, Holland.

A Cornell peat-lite mix A used as the basic growing medium was prepared as follows:

Material	Amount/cubic yard
Sphagnum peat moss	13 bushels*
#2 Horticultural vermiculite	13 bushels
Dolomitic limestone	15 pounds
Micromax trace element material	1½ pounds

*Thirteen bushels used to compensate for missing shrinkage.

Fertilizer additions were Nutricote Type 100 14-14-14 analysis at 10, 12½ and 15 pounds per cubic yard and Osmocote 100 14-14-14 analysis at the same rates. The fertilizers were thoroughly incorporated into the media.

A liquid fertilized control was used for comparison purposes. These plants were fertilized at every irrigation using 250 ppm N-P_2O_5-K_2O from a 20-20-20 analysis fertilizer.

Rooted cuttings of Yellow Mandalay were provided by Yoder Brothers, Barberton, Ohio. Five cuttings were planted to a 6-inch, ¾ size plastic pot on August 27, 1980. There were 10 replications of each fertilizer treatment. The plants were grown under long day conditions until September 10, when short days were started. A soft pinch to induce lateral branching was made September 3. The plants were grown in a 62° night temperature 70-75°F day temperature glass greenhouse at Ithaca, N.Y. During the production period no other fertilizers were applied to the Nutricote or Osmocote amended media.

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Fig. 1. Comparison of liquid fed control 'Yellow Mandalay' plants with Nutricote and Osmocote 14-14-14 at 10 lb. per cubic yard of peat-lite mix A. Photo November 11, 1980.

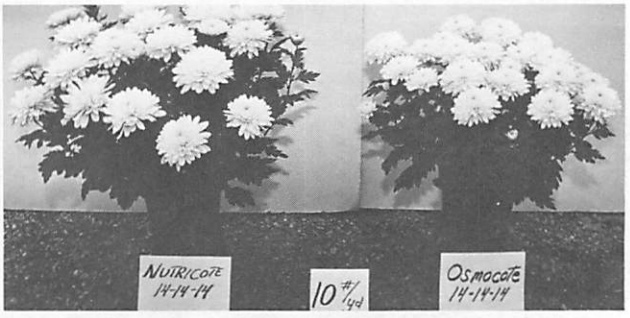

Fig. 2. Comparison of 'Yellow Mandalay' grown with 10 lbs. of either Nutricote or Osmocote 14-14-14 fertilizer per cubic yard of peat-lite mix A. Photo November 11, 1980.

New Japanese Fertilizer (continued)

The plants were harvested November 13, 1980 when in full bloom. Data taken were height, number of flowers, average plant width and fresh weight. Photographs were also taken at the time of harvest.

The plants were cut off at the soil line and dried in a forced draft oven at 65°C until constant weight was obtained. At this time the dry weight was measured.

All the harvest data were subjected to a statistical analysis of variance. These are presented in Table 1.

RESULTS

An immediate general observation was that all Nutricote and Osmocote fertilized plants were far superior to the control plants that received a liquid fertilizer treatment. This was at first perplexing since previous studies had shown an application of 250 ppm $N\text{-}P_2O_5\text{-}K_2O$ at every irrigation was satisfactory for excellent chrysanthemum growth. However, previous experiments with chrysanthemums in peat-lite media always had a preplant application of superphosphate incorporated. In this study that procedure was not followed. As a result it was concluded that growth of the control plants was severely inhibited due to a phosphorus deficiency even though a liquid application was made. This emphasizes the importance of preplant applications of phosphorus. If a grower relies only on a liquid phosphorus fertilizer, the quality of the plants will be severely impaired.

Data presented in Table 1 provide the treatment comparisons. Figures 1 through 4 provide pictorial comparisons of growth from the various treatments.

Height: All plants grown with Nutricote or Osmocote were significantly taller than the controls. This response was due to the severe inhibiting effects of the lack of phosphorus in the critical first weeks of growth. Regardless of the amount of Nutricote used, plant height was significantly greater than Osmocote fertilized plants except for the 12½ pound rate of Osmocote.

Number of flowers: All slowly available nutrient fertilized plants had significantly more flowers than the controls. This condition is a reflection of the total, overall excellent growth of the plants as a result of having received adequate nutrients through all stages of growth.

Fresh weight: The greatest fresh weight was obtained at the highest applied rate of Nutricote. However, the weight was not statistically greater than that of plants grown with lower levels of Nutricote or the medium level of Osmocote. Plants grown at the highest rate of Osmocote were lightest but not statistically different from those grown at the 10 or 12½ pound rate of Osmocote. Control plants weighed significantly less than any of the Nutricote or Osmocote fertilized plants.

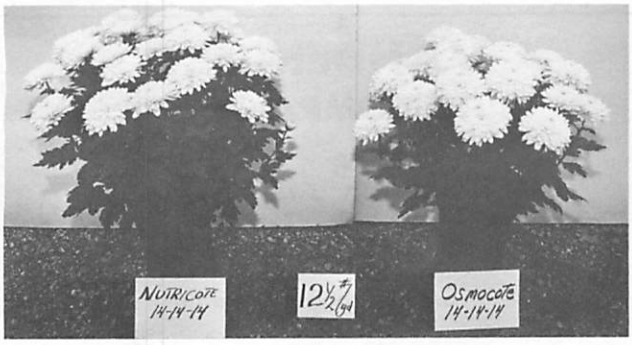

Fig. 3. Comparison of 'Yellow Mandalay' grown with 12½ lbs. of either Nutricote or Osmocote 14-14-14 per cubic yard of peat-lite mix A. Photo November 11, 1980.

Dry weight: The dry weight data are similar in relation to treatments as the fresh weight data.

Width: An average overall measurement for width showed no significant differences among the plants grown at the three rates of Nutricote fertilizers and the 10 pound rate of Osmocote. As with fresh and dry weight the highest rate of Osmocote used resulted in a significantly reduced plant size when compared to those in the other fertilizer treatments. Even so, the width was still better than that obtained with the liquid control fertilizers.

TABLE 1. Response of 'Yellow Mandalay' chrysanthemums to various rates of Nutricote and Osmocote slowly available nutrient sources. Figures are average of 10 observations. Data taken November 13, 1980.

Treatment	Height (cm)	No. Flowers	Fr. Wt. (gms)	Dry Wt. (gms)	Width (cm)
Control	16.6 c*	17.0 b	96.7 d	12.6 d	30.1 d
Nutricote 10 lb.	28.2 ab	23.0 a	298.6 ab	35.6 ab	44.7 ab
Nutricote 12½ lb.	28.9 ab	24.2 a	292.0 ab	35.5 ab	44.1 ab
Nutricote 15 lb.	30.2 a	25.4 a	339.9 a	39.1 a	46.4 a
Osmocote 10 lb.	25.4 b	22.1 ab	241.5 bc	28.7 bc	42.9 ab
Osmocote 12½ lb.	26.3 ab	23.9 a	268.1 abc	32.5 abc	41.1 b
Osmocote 15 lb.	24.7 b	22.4 a	204.2 c	25.9 c	36.5 c
Average	25.7	22.6	248.7	30.0	40.8

*Figures in a column not followed by the same letter are significantly different at the 1% level of significance.

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New Japanese Fertilizer (continued)

SUMMARY AND CONCLUSIONS

Nutricote fertilized 'Yellow Mandalay' chrysanthemums were generally superior in height, fresh and dry weights and width when compared with Osmocote fertilized plants. All plants grown with slowly available nutrient sources were far superior to liquid fertilized control plants. This was attributed to a phosphorus deficiency in the early stages of growth as a result of withholding a preplant application of superphosphate.

A 10 pound per cubic yard rate of application of Nutricote was superior to a 12½ pound rate of Osmocote fertilizer.

From these studies it is concluded that an excellent crop of potted chrysanthemums can be grown in a Cornell peat and vermiculite Mix A with the addition of limestone and trace elements and a single preplant application of 10 pounds of Nutricote 100, 14-14-14 analysis fertilizer per cubic yard of media. No other fertilizer is needed.

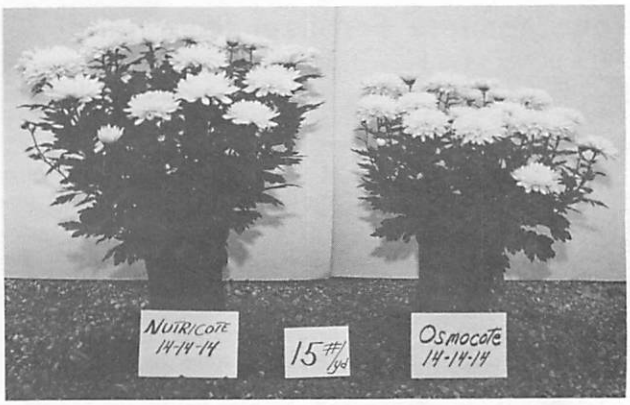

Fig. 4. Comparison of 'Yellow Mandalay' grown with 15 lbs. of either Nutricote or Osmocote 14-14-14 fertilizer per cubic yard of peat-lite mix A. Photo November 11, 1980.

THINK TANK: NORTHEAST "INDEPTH" HEARING – PART III

Some crystal ball gazing was part of the discussion at this session at Cornell University between Dr. Marc Cathey and industry leaders. What can be expected in industry changes? How much of a threat is offshore competition? What is needed by the flower producer to cope with the regulations affecting business? The following suggestions came from this lively discussion:

1. Develop our own export market of new plants which are pest-free and have unique sales appeal.
2. Design products for specific age groups. Select names, sizes, and times of availability which relate to their styles of living.
3. Design plants and product presentations which permit retail florists to market "flashy" 10-cm container grown foliage and flowering plants.
4. Develop flower, foliage, and consumable plants which can be finished in solar-heated greenhouse-living spaces.
5. Select plant products which convey the primeaval associations of the consumer.
6. Re-evaluate the pricing, the unit, the packaging, the dating, the information delivery, and the identification of the plant products.
7. Seek the cooperation and the development of Horticultural Centers of Excellence which permit more efficient marketing, competitive auctioning of plant production, pick up of supplies, and the distribution of information.
8. Establish procedures to collect, expand, and distribute information on products sold by growers, wholesalers, and retail outlets.
9. Tract-buyers through the selection, delivery, consumption, and disposal of florist products. Establish socio-economic factors controlling consumption of florist crops.
10. Appraise impact of the influence of special groups (service clubs, schools, churches) in marketing/distributing surplus and/or florist crops of less than first quality.
11. Clarify language and potential impact of FLORABOARD on the consumption of florist products.

Energy Tax Savings

NYSFI Energy Committee Chairman George Zerillo of Syracuse reminds all growers to fill out their exemption form for a rebate on sales tax paid on natural gas. There is also an exemption form that allows for non-payment of tax rather than a rebate, but George reminds us that most utilities will not accept this method. The surcharge that was levied on natural gas should never have been enacted, and a refund can be obtained. Please remember that exemptions on natural gas apply only to growing areas and not to boiler rooms, retail shops, etc. For more information, George Zerillo can be reached at 315-656-8466.