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Nutrient Content of 'Paul Mikkelsen' Poinsettias from Juvenile to Mature Growth

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The nutrient requirements of poinsettias are not so different from other florist crops that are grown under greenhouse conditions. There does appear to be some speculation about the nutrient needs as evidenced by the recommendations put forth by several authorities. One states that feeding 200 ppm N and 200 ppm K at each watering is satisfactory. No mention is made of the need for phosphorus; however, it must be assumed that phosphorus is added as a preplant application.

Another states the newer cultivars of poinsettias have heavier feeding requirements than the old standbys, such as 'Barbara Ecke Supreme'. The recommendation is to apply 250 ppm N, 28 P and 130 K at every watering or 250 N, 44 P and 85 K at every watering. A liquid feed at every second or third irrigation calls for 500 N, 56 P and 260 K or 500 N, 88 P and 170 K.

It would seem that adherence to a ratio of 2 N and 1 K might possibly result in suboptimal amounts of potassium being applied to the plants.

The objective of this experiment was to get some specific nutrient information on a crop of 'Paul Mikkelsen' poinsettias planted in a standardized growing medium, fertilized regularly under cultural conditions that were maintained as closely to recommended as possible.

Materials and Methods

Rooted cuttings of 'Paul Mikkelsen' cultivar poinsettias that had been propagated September 11, 1968 were potted October 22, 1968. One plant was placed in a 5-inch clay pot and grown as a single stem plant.

The standardized poinsettia, peat-lite mix was made up as follows:

One bushel sphagnum peat moss		
One bushel #4 vermiculite		
Dolomitic limestone	82 grams	(2#/cu yd)
Gypsum	124 grams	(3#/cu yd)
20% Superphosphate	206 grams	(5#/cu yd)
Potassium nitrate	41 grams	(1#/cu yd)
Peters fritted trace element mix	4 grams	
One 2-1/4-inch potful granular Aquagro—a wetting agent		

The plants were placed in a fan and pad cooled greenhouse where they received a minimum 65°F night tem-

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Employee Management in the Flower Industry*

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Let's take a hard look at the word "employee." We could ask how an employee in any floriculture business is different from employees in any other business. However, that question is usually answered more efficiently if the manager starts with the opposite question. How is an employee in any floriculture business the same as an employee in any other business?

A first approximation to an answer to that might be this "an employee is always someone who does work that the employer cannot do himself." But that definition uses another word that has been used in too many ways. What is *work?* It doesn't clear things up much if we say that work is what an employee does. A dictionary could tell us ten different meanings of *work,* but it might be more revealing, from the standpoint of employee attitudes, if we ask a group of children to tell us what work is. Children learn the meaning of words by listening to the way adults use them. Since adults around them are usually employees as well as parents and teachers, children's attempts to

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* Today the managing of employees is every bit as technical and complicated as the managing of the financing, production and marketing of the product. It is as difficult for a manager to keep abreast of new trends in employee relations as it is to stay on top of the rapidly changing technology of the floriculture industry. Responding to the needs expressed by owners and managers, the Kenneth Post Foundation and the New York Florists' Club have provided grants to support an effort by the Department of Floriculture and Ornamental Horticulture and the New York State School of Industrial and Labor Relations, both at Cornell University, to study employee management in the flower industry. This article is the first of a number which will be developed as a part of this program.

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Poinsettias

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perature. The day temperature was 70-72°. Artificial long days were provided by using 75 watt incandescent bulbs 2 feet above the plants, spaced 3 feet apart. They were turned on daily from 11 pm to 1 am. Long day conditions were maintained for two weeks following potting, at which time short days were begun. Short days were obtained by pulling black cloth daily from 5 pm until 8 am. Artificial short days were continued until the flowers had reached anthesis even though natural short days prevailed at the time of the experiment.

One week following planting a liquid feeding program was started. Calcium nitrate and potassium chloride were used to supply 400 ppm N and 400 ppm K once weekly.

On November 5, two weeks after planting, 8 uniform plants were randomly selected for recording data and analysis. Data obtained were:

1. Height in centimeters from the medium surface to the top of the plant.
2. Number of leaves and leaf scars
3. Fresh weight
4. Dry weight
5. Foliar analysis to obtain nitrogen, phosphorus, potassium, calcium, magnesium, sodium, zinc, copper, iron, boron and aluminum.
6. Soil analysis to determine nitrate nitrogen, phosphorus, potassium, pH and total soluble salts.

To have enough plant material for foliar analysis it was necessary to combine the leaves from two plants. Leaf tissue only was used. All of the leaves on the plant went into the sample rather than selecting leaves from any particular area of the plant.

The plants had reached anthesis and were considered to be in full bloom (pollen showing) on December 30. At this stage they would have been saleable as a commercial product. We continued to take records, however, to determine what changes would take place following full bloom, thus our recording period was extended to January 28, 1969. At this time a final series of samples were taken.

Results

Nutrient content: The nutrient content of the plants is presented in Fig. 1 and Table 1. Generally nutrient content is expressed on a percent dry weight basis. As such, the results will present a generally accurate portrayal of nutrient changes that take place. However, there are times when an erroneous conclusion may be drawn. For instance, during the juvenile stages of growth the nitrogen content may show a high percent by weight value because the plant is very succulent and has relatively little dry matter. As maturity is approached the dry weight matter increases so that results expressed as a percent dry weight may be small. This is referred to as a carbohydrate dilution effect.

Occasionally nutrient results may be expressed on a milligram per plant or milligram per cutting basis. This also leads to erroneous conclusions since no two plants or cuttings ever weigh the same amount.

The data presented in Fig. 1 for N, P, K, Ca and Mg are expressed on the basis of milligrams of nutrient element per gram of dry weight of plant tissue. In this way we eliminate the confusion caused by differences in plant size or weight and relate everything to a standard base.

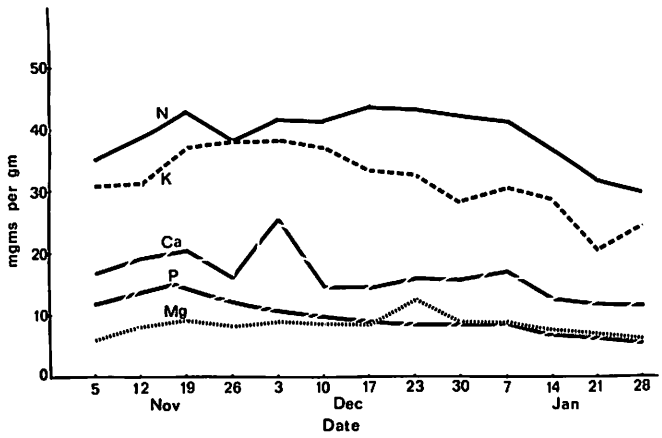

Figure 1. The nutrient content of 'Paul Mikkelsen' poinsettias expressed as milligrams per gram of dry weight. Figures are averages of 4 replications.

TABLE 1: Concentration in Parts per Million in 'Paul Mikkelsen' Poinsettias Sampled at Weekly Intervals.

Sampling Date		*Sodium*	*Zinc*	*Manganese*	*Iron*	*Copper*	*Boron*	*Aluminum*
Nov.	5	384	77	140	230	5.5	40	174
	12	388	83	180	254	4.5	43	187
	19	389	94	240	384	12.5	49	286
	26	226	66	185	234	7.5	38	206
Dec.	3	155	71	212	386	11.0	41	202
	10	169	71	177	280	9.0	39	204
	17	155	57	179	230	8.5	41	247
	23	125	59	200	349	9.5	38	283
	30	133	69	179	230	10.5	44	286
Jan.	7	142	62	179	252	10.0	41	282
	14	88	46	147	194	8.0	36	200
	21	85	41	147	244	7.0	35	182
	28	90	36	126	146	4.0	32	163
Avg.		194.5	64.0	176.2	262.5	8.3	39.8	223.2
Low-Hi		85-389	36-94	126-240	146-386	4.0-12.5	32-49	163-286

Nitrogen: The N content ranged from a high of 43.90 to a low of 30.00 mgms/gm. The average was 39.11. The curve shows there is not too much variation in the tissue N content. It is low at the beginning of growth, gradually rises and then drops off at the latter stages of plant maturity. This is understandable in that as a plant matures there is less need for N; however, the lower values obtained at the beginning of the growth cycle do not necessarily fit the normal pattern. The reduced levels at the latter stages of growth may also have been related to reduced availability of N as evidenced by the soil test data (Fig. 2).

Potassium: The K content of the tissue somewhat followed the same pattern as N except at a lesser magnitude. Potassium content ranged from a high of 38.40 to a low of 20.80 mgm/gm of dry weight. The average was 31.82. Potassium was generally high through all stages of growth and only gradually decreased as the crop matured. The greatest decrease took place after the period of full bloom.

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Poinsettias

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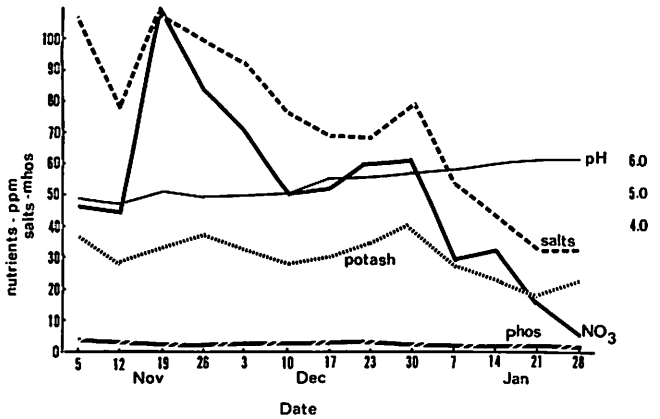

Figure 2. Soil pH, nutrient content in ppm and total soluble salts in mhos. Figures are averages of 8 replications.

Soil potash levels remained in a good range during the entire course of the experiment and at no time could they have been considered critically low.

Phosphorus: The P content of plant tissue reached a peak on the 3rd sampling date and then began a gradual decline. The high was 14.40 mgm/gm and the low which was obtained on the final sampling date was 5.40. The average value was 9.53.

The high level of P in the early stages of plant growth reflect the importance of having an adequate amount of this element available in the growing medium. The declining amount would seem to indicate that the plants need for P does decrease as it matures.

Calcium: The data for Ca show a generally uniform level of content except for a large increase that occurred in early December. No specific reason is given for this occurrence. This sharp deviation is not reflected in any other fashion. The pH value (Fig. 2) shows a steady gradual rise during this period. Calcium was being supplied weekly as calcium nitrate.

The range of content was from 11.10 to 25.60 mgms/gm with an average of 16.25.

Magnesium: The Mg content was approximately half that obtained for Ca. The range was 5.80 to 12.57 with the average 8.14 mgms/gm. Magnesium was low at the beginning of the sampling period, in fact the lowest level was obtained on the first sampling date. The level gradually rose until it peaked on December 23 after which there was a gradual decline.

Of these 5 elements there were no extremely large differences in content occuring from the beginning to the end of the sampling period. A uniform level obtained which would indicate that for the maximum growth of 'Paul Mikkelsen,' a standard fertilizer application should be made as soon as the plants are panned, on a regular basis and continued until the plants are shipped out for sales. Fertilization should not be stopped early as this may have a detrimental effect on the remaining life of the plant.

The data for the trace elements and sodium are presented in Table 1. In no case were these considered to be in a deficient status. The high and low figures with the average are given for comparative purposes. They do not represent minimal or maximal amounts nor are they intended to do so.

Soil Analysis: The soil analysis show the changes that occurred in nutrient content of the growing medium. Following planting the crop was fertilized weekly with 400 ppm N supplied from calcium nitrate and 400 ppm K from potassium chloride.

Nitrate: Of the nutrient elements supplied the nitrates showed the greatest variation. From a high of 109 ppm that occurred three weeks after sampling was started to a low of 4 ppm on January 28. Levels of 50 ppm or more were maintained until the plants had reached full bloom, December 30, after which the nitrate level declined.

Phosphorus: Although no additional P was supplied the plants the preplant application of superphosphate provided an adequate amount of P during the entire growing period.

Potassium: Soil levels of K were maintained within a range that was always considered adequate. During the period November 5 to December 30, the range varied from 28 to 40 ppm K. After the date of full bloom, the levels did decline to a low of 18 ppm. Part of this K may have been extracted from the vermiculite portion of the growing medium, since it has been established that K is available from vermiculite. This experiment was not designed to separate these factors.

pH: At the start of the growing season the pH of the medium was 4.85. This is considered an excellent pH for poinsettias as it aids in the control of *Thielaviopsis basicola,* a root rot organism. As the growth period progressed the pH gradually rose to a reading of 5.72 by December 30. On January 21 it reached 6.10.

Total Soluble Salts: The total soluble salt content of the medium paralleled the nitrate content. At the beginning of the growing period the salts were around 100 mhos. As the crop developed the salt level declined gradually until it reached a reading of 32 on January 21. At no time were soluble salts in a toxic range or could they have been considered to be harmful to the growth of the crop.

As with pH the salt levels could be considered excellent for the growth of poinsettias.

Number of Leaves and Height: The data for number of leaves and height are presented in Fig. 3. The number

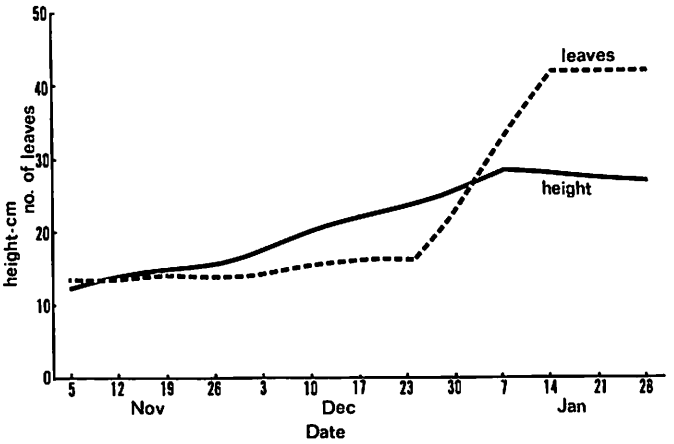

Figure 3. Height in centimeters and number of leaves of 'Paul Mikkelsen' poinsettias. Figures are averages of 8 replications.

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of leaves ranged from 13 to 16 during the course of plant growth. The sudden rise in leaf number that started December 23 was a result of the beginning of bract appearance. Both bracts and leaves were counted together. Actual leaf number of 16 remained the same until the experiment was terminated. The numbers of bracts that developed were about 27, a figure previously reported for cv, 'Ruth Ecke' by Struckmeyer and Beck (1). A count of leaf scars showed very little leaf drop had occurred. There was an average of one leaf scar for the 8 plants at each sampling date.

The height of the plants gradually increased as the growing period progressed. Maximum height was obtained shortly after the plants had reached full bloom. Very little, if any, stem elongation occurred after full bloom.

Although the curve for height shows a slight decline the plants obviously did not shrink in size. The reduction is a reflection of the plants that were selected for measurements. The randomness of selection was reduced as the number of plants available for selection decreased.

Fresh and dry weight: As a measure of growth, both fresh and dry weight are frequently used. With many plant types, for leaf tissue a relationship of fresh to dry weight is in a ratio of approximately 10:1. That is to say 10 grams of fresh weight will dry to 1 gram of dry weight. For the cultivar 'Paul Mikkelsen', the ratio of fresh to dry weight was approximately 5:1, Fig. 4. The possible reason for this disparity is that stems were included in the measurement. Stems have a heavier weight ratio than leaves.

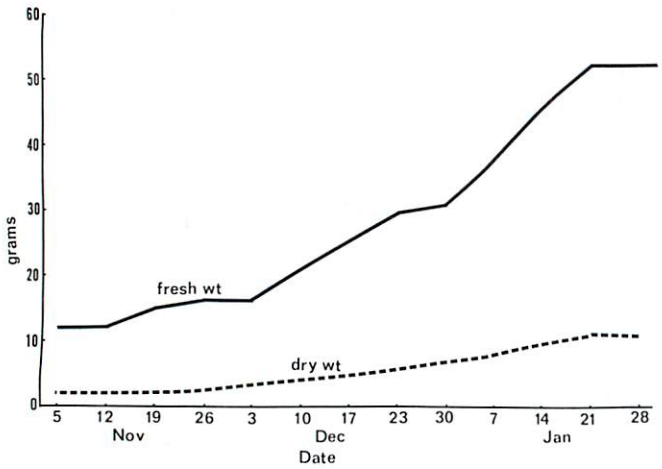

Figure 4. Fresh and dry weight of 'Paul Mikkelsen' poinsettias. Figures are averages of 8 replications.

From the start of the sampling period until the end, the fresh weight increase was approximately 40.15 grams. Of this total the weight gain was separated into 3 distinctive periods.

The period November 5 through and including December 3, shows an increase in fresh weight that totaled 4.62 grams or 11.5% of the total weight change. This is a rather small increase in weight when you consider that this time period represents more than 1/3 the plants' life and is also a period when active growth should be taking place. From December 3 through December 30 the average increase was 14.3 grams or 35.7% of the total. On December 30 the plants were considered to be in full bloom. As a commercial product they would be sold at this time. However, up to this stage only 47.2% of the measured growth had occurred.

From December 30 until January 21 the plants added 21.20 grams of fresh weight or 52.8% of the measured total. All of this weight had been added after the plants would normally have left the greenhouse and no longer be in the care of the grower. Most of this increase is probably in the development of the bracts; however, the point is made that the poinsettia produces over 50% of its growth or has the potential to do so, after it leaves the greenhouse. For this reason the grower should do everything possible to ensure that when his poinsettias leave the greenhouse they have received the best cultural care that could possibly be given right up to the time they are sleeved for shipment.

Although not as spectacular in magnitude the dry weight curve shows a similar relationship. There is a general dry weight increase as the plant matures.

Discussion and Conclusions

The results obtained in this experiment are representative of one cultivar of poinsettia, 'Paul Mikkelsen', grown under a set program of environmental conditions.

Although representative of the new breed of poinsettias it would be erroneous to say that the data presented are specific for all the new cultivars that presently exist.

It may certainly be said that the results presented should be similar to what one might find with other cultivars grown under similar conditions of environment. At least they could be looked upon as guidelines.

The nutrient content of the plant, as was determined by foliar analysis, showed that there were no large changes taking place from the juvenile to mature stages of growth. 'Paul Mikkelsen', showed a balanced nutrition that was relatively high at the start of growth, increased slightly and declined gradually as maturity was reached. The ratio of N:P:K:Ca:Mg was approximately 4.8:1.2:3.9:2.0:1.0 or 5:1:4:2:1.

The use of a feeding program that supplied 400 ppm N from calcium nitrate and 400 ppm K from potassium chloride appeared to be a satisfactory one. There is some question that the 400 ppm N level should have been increased at the time of full bloom. The suggestion for this is seen in the soil analysis where the nitrates dropped from a level of 50 ppm to 5 ppm over a 4-week period.

The large increase in fresh weight at this time which was attributable to the developing bracts was probably responsible for this depletion of soil N. Since the drop in soil nitrates occurred during the period when the plants would normally have left the greenhouse for sales purposes, it would be difficult to correct this decrease in soil fertility without resorting to some type of slowly available N source. This could be applied just prior to shipment of the plants.

The special poinsettia peat-lite medium and fertilizer procedure used appeared to have supplied a sufficient quantity of the other nutrient elements needed without

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Employee Management

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define work will tell us more about how actual employees think of work than a dictionary can. A group of ten-year-olds would probably produce a list of answers that would look much like the ones below.

1) "Work is what you do if you're not playing."
2) "Work is something hard—like play is something easy."
3) "Work is something somebody else wants you to do."
4) "Work is something that makes you dead tired."
5) "Work is what you do for a living."
6) "Work is something you have to learn how to do."
7) "Work is what you do if you are a good citizen."
8) "Work is something that takes a lot out of you."
9) "Work is what my Dad does when he is playing."
10) "Work is investing your own personal resources in time, energy, and skills in performing an activity which is not directly satisfying to yourself, but which will result in a product that is directly satisfying to yourself or to someone else who will reimburse you for it at a rate that will permit you to satisfy some needs directly."

The last definition must have been produced by a child "genius." It manages to say in large words, most of what the other children said, simply; except for the next to last child. Work as an activity which doesn't satisfy a person directly, probably accurately describes the situation for the majority of jobholders in the United States. The one child's Dad must belong to the lucky 10% who play something so well that others will give them something in exchange for their play. They get "paid" for doing something they would want to do anyway. For a pro golfer, the activity involved in sinking a long putt produces so much psychological return on his investment that he would want to make the investment even if no one "paid him" for it. Some lucky people have the talents to get the rare jobs that everyone agrees must be pleasant for the people who do them. Other lucky people like to do their job even if most others don't. When you ask them what kind of work they do, they say, "I'm in the advertising game" or "I'm in the wholesale grocery game", or "I'm in the ditch-digging game." If someone calls their occupation a game, they are probably telling us that just doing the activity involved in the job, gives them many of the things they need, and the fact that others will pay them for doing it is an added bonus.

For the rest of us, our total job situation is not a source of need satisfaction. The work activities we are performing and the environmental surroundings in which we perform them, don't have any potential for satisfying any of our needs, so all the return on our investment must come from what we are paid after we finish. We can then take that and exchange it for whatever will satisfy our needs directly. Thus, we may exchange some of our pay to see the movie which a movie critic gets paid for seeing. We pay to ride in the same airplane that an airlines inspector gets paid for riding. We may spend money giving a party to obtain the social rewards that the member of a close-knit work team obtains while on the job. We may budget some of the profit from our own job for a hobby like raising the same flowers that others get paid for growing.

What does all this have to do with employee management in a floriculture business? It provides a good starting point for examining the human side of your business. Think of each of your employees by name. Do any of them think of their job with you as a "game?" Will any of them say that they received any rewards from coming to work today, in addition to the dollars and cents they earned? If, for some reason, they didn't get paid money for a day's work, would they consider it a *total* loss on their investment of time, energy and skills?

If you can't think of at least one employee who considers his dollars-and-cents pay the only reimbursement he gets for his investment, then you have an exceptional employment situation. Most employers find that a good percentage of their employees are not receiving any need satisfaction directly from the content or context of their job. All need satisfaction; for them, must be postponed until their "spare time."

We could consider some of the different ways this end result could arise. In one case, the source of the problem might lie in the employee. He might have unusual or unreasonable needs that couldn't be met by any job now in existence. In the second case, the root of the problem might lie in the job. It might be so designed that it has low potential for satisfying any of the common human needs, except for money needs. Finally, perhaps neither the employee nor the job are really at fault, but they are simply mismatched. That is, the job content is neither better nor worse than the majority of jobs, and the employee doesn't have any rare or unreasonable needs, but the job doesn't happen to satisfy those needs he does have.

It is always tempting for the employer to take the easiest way out and blame an unsatisfied employee for expecting too much from a job. However, experience has shown that an appalling number of jobs were originally designed with no thought given to the possibility that the task could be done with reasonable efficiency and still be designed in a way that could offer satisfaction of other common needs than simply money needs. Poor job structure and mismatching of person and job, are far more common than are problem employees.

The question remains, of course, what difference does it make if an employee finds that the only kind of reward he gets from his job is the monetary one? The same employee could still be the best employee you've ever seen in that job. Careful human factors research has shown that this result is entirely possible, since the employee's attitude toward the job is not the only factor that has an influence on his production behavior. If the employee has many other favorable characteristics, these can take up the slack left by his weak attachment to the job itself.

But we *can* say that the employee who perceives his job as returning very few rewards other than economic ones, should be placed in a *high risk* category. *Probably* he is performing below the level where he could perform if the rewards were greater, whether he realizes this or not. He is very likely to collect sick pay at times when he

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would still report for work if it were generally rewarding. He is more likely to complain to fellow workers about the "little things" he would ignore otherwise. He is more likely to be a poor recruiter of new employees; a source of bad advertising among the community labor force. He is more likely to jump to another job at the slightest opportunity.

Thus, it is only good insurance for an employer to automatically budget some of his time as a manager to improving the match between the job situation on the one hand, and the needs of the particular employee now holding that job, on the other hand. This is something that should be done as frequently and as carefully as all the other aspects of management. Employee management has as great an effect on the overall efficiency of an organization as does financial management or product management or sales management.

Unfortunately, even where there is commitment to the principle that the content and context of a job can be made more satisfying to the jobholder, a pay raise is often the only thing anyone (including the employee) can suggest. More money is usually what both sides in a labor dispute talk most about because it is easiest to put into words and action. Sometimes the pay rate or fringe benefit *is* the major source of an employee's dissatisfaction with his job. However, many a dissatisfied employee will privately admit that he is already being paid a wage that is "fair" in terms of the value of what he produces to his employer, but he still thinks it is a lousy job. Even if he receives a pay raise he may still say to himself, "If I can find a better job, I'll take it—even if it means less money."

A management action which raises an employee's *on-the-job rewards* may be a more effective incentive to turn down opportunities elsewhere than an increase in *take-home* pay. A management action which improves the job may be a more appreciated reward for good performance than a bonus. Let's consider some of the kinds of "raise" that a manager can offer to the employee whose attitude toward his job is that it is "all work and no play."

The Responsibility Raise

Many employees would welcome an increase in the degree to which they have some control over what happens to them during working hours. Most people have developed the need to accept some responsibility in their life. They enjoy the feeling of competence that comes when a challenge is successfully met, so they seek out challenges to test themselves against. If the job does not provide enough independence, or in fact increases the need for independence because the employee is forced to be totally dependent on others for the entire working day and is deprived of any challenges, then the employee will have to budget some of his spare time (and perhaps some of his pay), to fulfilling this need. Thus, if the employer can find ways to change the job or the way the employee is supervised so that some of this satisfaction can come through the work itself, this frees part of the employee's resources for use in other ways, and amounts to a "fringe benefit" from the job.

The Knowledge Raise

Most employees have a "need to know." They need to know why they are told to perform their job in a certain way. They would like to know how their job fits into the overall operation of the business. They need to know more about the general industry they are a part of. Many employees say that the only time they really enjoyed their work, was when they were learning it. Once their employer considered their training complete and stopped providing opportunities to learn something new, then the feeling of "just putting in time" began. The fact that the offer of additional training, *under low pressure,* is often seen by the employee as a reward or incentive for good performance, is not widely recognized.

The Praise Raise

Many jobs are such that good efforts are easily taken for granted while mistakes are glaringly obvious. Most of us gain a certain amount of satisfaction out of doing something well, whether we receive praise for it from others or not. But it does increase satisfaction when good efforts are publicly recognized. Suppose that during one day, an employee does five things adequately and one thing poorly. Criticism from the manager which is meant to help the employee avoid the mistake in the future, will generally be much more effective in accomplishing its purpose, if the employee is made aware the manager knows about and appreciates the mistakes he didn't make. Frequent and sincere praise whenever it is deserved, creates a climate that frees the employee from thinking about the content of deserved criticism rather than worrying about the fact that he is being criticized. Further, if the employee receives adequate recognition on the job, his need for it in his home and leisure activities will be lessened.

The Communication Raise

The nature of some jobs is such that the employee has little opportunity to hold conversations with fellow employees or even the supervisors, except under crisis conditions. The employee who is isolated by his job or by the way he is supervised, has no way to obtain satisfaction of his social needs during working hours. Friendships on the job are a strong source of satisfaction with one's employment, but these are difficult to form and maintain without frequent opportunities for casual communication. Some employees feel the need to communicate with someone else more frequently than others, but almost everyone feels more secure if there are guaranteed opportunities whether we take advantage of them each time or not. Communication is the tool we rely on in fulfilling many different kinds of needs, not just social ones. When the opportunity to freely communicate is lacking or chancy, people have to spend time searching for "back-up systems" to protect themselves. The employee manager who creates a climate where employees know it is "safe" to chat with others occasionally, and where "you can always talk to the boss about it," will generally find there is greater overall satisfaction.

The Empathy Raise

Empathy is the unfamiliar name that social scientists have given to something that is so common we often forget about it. Empathy is the ability to put yourself in

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someone else's shoes; to see the world from his point of view. Some people seem to have a great deal of this ability and they make it a habit to use it in their relationships with others. An example of the place for empathy in employee management is the very fact that this discussion of the various kinds of raises a manager can offer an employee will be wasted unless one picks the kind of raise which is most appropriate for each different employee. This may not always be the kind of raise we would most like to have if we were in the employee's shoes. A manager can strengthen his empathy ability by practicing it at every opportunity. Remember that you are looking at the job from the outside while the employee is looking at it from the inside. When in doubt, *ask* the employee to tell you what kind of changes you could make that he would consider "a raise." He may tell you that the fact that you asked him that question was a bonus for the day.

Poinsettias

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causing either toxic or deficiency conditions to develop.

Although one would expect an increase in soil pH when calcium nitrate is used on a regular basis, the weekly pH readings showed the increase that did occur was very slight. The medium pH was kept within the range considered good for poinsettias.

The largest increment of growth, greater than 50% of the total as measured by fresh weight increase, was associated with the development of the bracts. This stage of plant development normally occurs after the plants have left the greenhouse and are in the hands of the consumer.

In conclusion it may be said that proper preplant applications of P, Ca and Mg and trace elements were sufficient to supply the nutrient needs of 'Paul Mikkelsen' grown in a peat-lite medium. Weekly applications of 400 ppm N and 400 ppm K supplied from calcium nitrate and potassium chloride respectively were needed to maintain adequate soil and plant levels of these elements. There is no indication that less than a 1:1 N:K fertilizer ratio should be used during the growing period. There is some suggestion that a slowly available N source might be usefully applied at the time the plants reach full bloom, just before they are shipped for sales. Further study is needed to verify this before a general recommendation is made.

Literature Cited

1. Struckmeyer, B. E. and G. E. Beck. 1960. Flower bud initiation and development in poinsettia. (*Euphorbia pulcherrima Willd.*) *Proc. Amer. Soc. Hort. Sci.* 75:730-738.

Truth-In-Lending Law Summary of Requirements for Florists*

Many florists are experiencing difficulty in determining how the newly-enforced truth-in-lending act — Title I of the Consumer Credit Protection Act — specifically applies to their business. In an effort to help clarify the requirements of this legislation, which became effective July 1, a simple summary of the major provisions of the bill has been prepared by the Society of American Florists.

DISCLOSURE REQUIREMENTS

Basically, Title I requires that information about credit be disclosed by the lender. Any florist who extends credit to customers must, therefore, state certain information about credit extension. The provisions of the bill require that *before* credit is extended, the store must give — in writing — certain information regarding finance charges to prospective customers. The information which must be disclosed is as follows:

1) The amount of credit which will actually be available to the customer, any charges other than the finance charge included in the credit, and the resulting total amount to be financed.
2) The amount — in dollars and cents — of the finance charge.
3) The finance charge expressed as an annual percentage rate.

Exception: When the charge is $5 or less on an amount of credit up to $75, or when the charge is $7.50 or less on credit purchases of more than $75, the annual percentage rate does not have to be given.

An accepted means of presenting this information is to have a form letter printed and mailed to customers.

STATING TRUE INTEREST RATES

The percentage rates which must be stated must reflect the "true" interest rates. For example, a consumer borrowed $100 with a finance charge of $6 and repaid the loan in twelve equal monthly installments. Under the old law, lenders would have said that the interest rate was six percent. However, since the credit is repaid in monthly installments, the consumer only had the use — on the average — of about one-half of the original amount of credit over the course of the year. Therefore, the "true" interest is more than six percent. It is approximately elevent percent. The reason is that it is measured against the declining amount or the amount actually in use by the consumer. Standard tables for converting to "true" interest rates are available from the government.

REVOLVING CREDIT

In the case of revolving credit, the truth-in-lending act requires that interest rates be reported on both an annual and monthly basis. For example, a statement may indicate interest rates as being eighteen percent per year and one-and-one-half percent per month. In addition, the lender has the option of disclosing an "effective" interest rate to be calculated by dividing total annual income from revolving credit by annual earnings from interest rates on revolving accounts. For example, a store earns $1000 in interest charges and also collects $10,000 on its revolving charge accounts in one year. It has the option of disclosing an "effective" interest rate of 10%, as well as its monthly and annual charges.

* Prepared by the Society of American Florists.

Federal Wage-Hour Law Changes*

Kenneth Morefield
SAF Labor Consultant

The Wage-Hour Law exempts from the minimum wage and overtime provisions employees employed as executive, administrative and professional employees. The law authorizes the Administrator to define these terms. The definition has always included a salary requirement.

In order to be exempt, the employee had to be paid on a salary basis but also had to meet certain other requirements. TO STATE IT VERY SIMPLY — an executive (or supervisory) employee or an administrative employee must receive a salary of $100 per week and spend 80% of his time (60% if employed in a retail establishment) in supervisory or administrative duties. If he is paid $150 per week, he must spend at least 50% of his time in such duties.

If he is employed as a professional employee, he must now receive a salary of $115 per week. We have been advised by the Wage-Hour Division that a flower designer *could* be classified as a professional employee. If exemption is claimed for a designer, however, the Investigator would closely scrutinize the duties of the designer.

The Administrator has now proposed to increase the salary requirements as follows:

$100 salary for first level to	$130
150 salary for second level to	200
115 salary for professional employee	150

The Administrator scheduled hearings for September 16. If these proposals are adopted, it will mean that every employee of a retail or wholesale florist who is subject to the law and who is paid less than $130 per week will be entitled to overtime after 40 hours per week unless he is within some other exemption. Even if he is paid $130 per week, he will have to meet all other requirements of the regulations in order to qualify for exemption as an exempt employee.

The proposal will have no effect on the wages paid to employees employed in agriculture since agricultural employees are exempt from the overtime requirements of the Federal Wage-Hour Law.

* Reprinted from SAF Labor Bulletin—July, 1969.

Department Conducts Summer Training School For Teachers

George L. Good
Department of Floriculture
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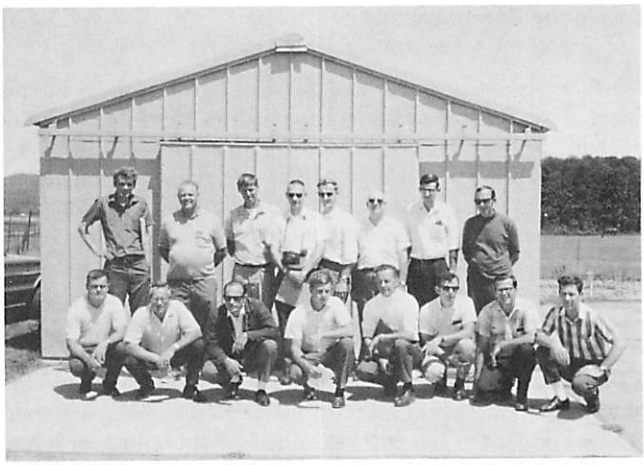
During July, the Department of Floriculture and Ornamental Horticulture conducted a three-week course in nursery and turfgrass management to acquaint instructors of vocational ornamental horticulture with the latest methods utilized in the production, selling and maintenance of sod and nursery crops. Sixteen teachers attended the course including four from S.U.N.Y. Agricultural and Technical Colleges. Instruction in the various turfgrass and nursery subjects was provided by G. L. Good, J. F. Cornman, H. B. Tukey, Jr., A. Bing, W. A. Sinclair, N. E. Johnson, H. Pidduck, D. C. Goodrich, J. H. Kumf, P. L. Stephonkus and R. G. Mower.



Rear, L-R—Russell Brumby, August Shearer, Arthur Townsend, Howard Broock, Walter Elmore, Willis B. Waite, Darryl Dale, Ronald A. Malkin.
Front, L-R—Charles Couture, Noel Jackson, Robert Cicchetti, Steve Plavcan, Vincent Smith, Paul Gabriel, James Comes, Bruce Wingert.

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