

LAWN CARE MANAGEMENT

Developing a good chemical program

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Lawn care is big business. A number of lawn care services had gross sales last year of over 10 million dollars. Most of these services provide a dry or granular program which has long been the industry standard.

The liquid lawn services are relative newcomers to the lawn care industry, although custom lawn spraying has been practiced for a number of years. The Davey Company first began spraying lawns for white grub control in 1937. Lawn service evolved as a natural expansion of the tree and landscape services, and by the

early 1960s Davey was providing lawn fertilization and insect and weed control as part of their total plant care operations. However, it was not until 1974 that a separate division, Davey Lawnscape, was established to meet the growing demand for lawn services.

Anticipating the establishment of a separate lawn care division, the Davey Horticultural Institute began researching both liquid and dry programs to compare effectiveness, economy and market potential.

Granular fertilization programs had distinct quality advantages over the existing liquid programs providing more uniform turf response and less potential for fertilizer "burn" and herbicidal drift.

Plant nutrients are absorbed through the root system primarily from soil solution. Therefore, fertilizers must be solubilized before they are available for absorption. Nutrients from liquid fertilizers are already in solution when

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Davey Lawnscape program in action today.



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successful program

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sprayed on the lawn and are immediately available, whereas nutrients from granular fertilizers are available more slowly as the granule dissolves in soil solution.

In addition to being more available, soluble nutrients are more readily leached from the root zone. Soluble fertilizers tend to move with ground water much the same as dissolved sugar moves with coffee when poured from a cup. Thus, liquid soluble fertilizers produce a rapid, succulent flush of growth that quickly yellows from a nutrient deficiency as the soluble fertilizers leach below the root level. Granular fertilizers produce more uniform growth because the nutrients are more uniformly available.

Fertilizer "burn" is a visible symptom of excess soluble fertilizer salts in soil solution. When the concentration of these salts reach a critical level, the absorption of water by plant roots is suppressed resulting in physiological drought or burn. The higher the solubility of a fertilizer, the higher the burn potential.

Summarizing fertilizer response, soluble fertilizers are immediately available but will cause turf burn at lower concentrations than will granular fertilizers and are leached from the root zone more quickly.

In addition to the nutrient advantages, granular programs minimized herbicidal drift by applying granular herbicides or by the controlled application of large droplets of liquid herbicide. Conventional spraying systems produced many "fines," small

droplets of solution that could drift onto flowers and ornamentals causing injury. Compounding this problem was the delivery height. Most of the liquid lawn services applied the spray material from a hand-held gun which gave less control than applications near ground level.

The major advantage of the liquid application technique was efficiency. The selection of compatible materials allowed fertilizers and pesticides to be mixed in the spray tank and applied in a single application in about one half the time required for a comparable dry program. The economic potential of a liquid program was obvious since, although labor is necessary for application, no actual benefit is derived from labor but rather from the materials applied. Minimizing labor would bring the cost of a chemical lawn care service within the affordable price range of practically every homeowner.

Ideally, an application system was needed that combined the uniform turf response and safety of granular application with the efficiency of liquid application — something akin to having your cake and eating it too!

In the spring of 1973, the Davey Horticultural Institute began researching materials to improve the quality of a liquid fertilization program and

*Davey Tree
lawn maintenance
in 1937.*



methods of controlled delivery.

Powder Blue, a powdered ureaformaldehyde that forms a suspension in water was tested for physical and chemical compatibility with Davey spray equipment and application materials. Comparison tests demonstrated that, with the use of Powder Blue, turf response was comparable to the response from quality dry programs.

The use of a sprayable organic nitrogen source represented a major breakthrough in establishing a liquid application program as a quality service.

Herbicidal drift, which had plagued the liquid services, was minimized by the development of a convex, multiple-hole nozzle. Under low pressure, this design produced a "shower" of large droplets that could be applied 10 to 12 inches above the ground.

Confident that the two main disadvantages of liquid application would be solved, the Davey Horticultural Institute was conducting concurrent research to determine the most effective pesticides which would be compatible in the spray tank.

A tank mixture is potentially reactive and requires careful testing to prevent the selection of materials which could combine in the tank solution and either become phytotoxic or lose their effectiveness. Since the proposed application program incor-

porated various fertilizers, pre-emergent herbicides, post-emergent herbicides and insecticides, the testing procedures were quite extensive. Once compatibility was established, the materials were selected on the basis of effectiveness, availability and cost.

Fungicides were not included in the basic program because of the infrequent and unpredictable appearance of serious diseases in a lawn and because of the high material cost. Disease control would be offered as a special service and the customer counseled regarding the seriousness of the infection and the alternatives to chemical control.

The final technical decision before Lawnscape became a reality was personnel training. The importance of highly trained and motivated technicians was recognized as essential to the success of the operation. The lawn care section, which was being taught as part of the Davey Institute of Tree Science, was expanded into a complete program of lawn science, including those areas not directly related to Lawnscape services.

The research staff is committed to continued research and training, to provide the most effective equipment and materials to our personnel and to provide the highest quality service to our clientele. □

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