SUMMARY

OF

TURFGRASS RESEARCH PROJECTS

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MICHIGAN STATE UNIVERSITY

January 1, 1973

M.S.U. Turfgrass Breeding Research

K. T. Payne

A. Current Projects:

- 1. Fine leaf fescue breeding for rhizomatous character and leafspot resistance (with Vargas).
- 2. Bentgrass breeding for a colonial type with disease resistance and sufficient aggressiveness to compete with annual bluegrass.
- 3. Breeder seed production programs for :
 - (a) Wintergreen chewings fescue
 - (b) Winter hardy meadow fescue.
- 4. Evaluation of bentgrass, Kentucky bluegrass, fescue, and ryegrass cultivars for Michigan conditions (with Beard and Vargas).
- 5. Environmental control of seedhead formation in red fescue needed to obtain a second generation per year.

M.S.U. Turfgrass Pathology Research

J.M. Vargas, Jr.

- 1. Studies on the development of Fusarium blight.
- 2. Chemical and cultural controls for Fusarium blight (with Rieke).
- 3. Testing systemic fungicides for the control of powdery mildew, dollar spot, and stripe smut.
- 4. Helminthosporium leaf spot studies on fescues.
- 5. Evaluating new fungicides for the control of snow mold (<u>Typhula</u> and <u>Fusarium</u>).
- 6. Evaluating the extent of nematode problems on turf in Michigan and studying possible control measures (with Laughlin).
- 7. Pesticide degradation by microorganisms.
- 8. Resistance of fungi to the systemic fungicides.
- 9. Role of fungi in the development of localized dry stops and possible means of control (with Beard and Rieke).

B. Projects Planned:

- 1. Fairy ring control.
- 2. Fertility factors affecting fairy ring development.

C. Projects Terminated:

1. Application dates for Typhula blight control.

M.S.U. Turfgrass Physiology and Ecology Research

J. B. Beard

- 1. Biochemical mechanisms of high temperature growth stoppage (with Kaufmann).
- 2. Development of a traffic simulator for use on turfgrass research plots (with Rieke and Shearman) (USGA Green Section and Research Education Fund Grant).
- 3. The anatomical and physiological basis of turfgrass wear tolerance as affected by cultural practices (with Shearman).
- 4. Mechanisms and biological prevention of thatch formation (0.J. Noer Research Foundation Grant).
- 5. Characteristics, adaptation, and cultural requirements of annual bluegrass (with Rieke).
- 6. Evaluation of cultivars, blends, mixtures, and relative cutting heights for the rate of (a) sod formation and (b) transplant sod rooting.
- 7. Sod clipping collection, pelletizing, and utilization (with Tesar, etc).
- 8. Cultural systems for optimum sod production (with Rieke).
- 9. Renovation of annual bluegrass dominant fairways and establishment of bentgrass or Kentucky bluegrass dominant turfgrass communities.
- 10. Physiological basis of turfgrass shade adaptation (with Wilkinson).
- 11. Electrophoretic identification of turfgrass cultivars (with Wilkinson and Yoder).
- 12. Ecology of turfgrass shade adaptation (with Vargas).
- 13. Innovative techniques in short-term sod production (with Martin).
- 14. Mower type clipping relationships in thatching (with Yoder).
- 15. Evaluation of antitranspirants for turfs (with Yoder)

B. Projects Planned:

- 1. Physiological basis of low temperature discoloration of warm season turfgrasses.
- 2. Components of competition within a turfgrass community.
- 3. Influence of winter traffic on turfgrass winter injury.

C. Projects Terminated:

- 1. Cultural and enviromental factors affecting the water use rates of turfs.
- Evaluation of carbohydrate extraction procedures for <u>Poa</u> and <u>Agrostis</u> species.
- 3. Cultural practices for minimizing winter injury caused by desiccation and low temperature stress (O.J. Noer Research Foundation Grant).

M.S.U. Turfgrass Soils and Nutrition Research

P. E. Rieke

- 1. Evaluation of herbicide and fertilizer treatment on the persistence of Poa annua in Kentucky bluegrass and bentgrass turfs (with Beard).
- 2. Determination of nitrogen requirements of several turfgrasses.
- Comparison of nitrogen response of sodded and seeded Merion Kentucky bluegrass.
- 4. Evaluation of several nitrogen fertilization programs on fine sandy loam (East Lansing) and sand soils (Traverse City), (with Beard).
- 5. Study of the movement of nitrogen, phosphorus, and potassium under turfgrass conditions and potential contribution to water pollution.
- 6. Influence of nitrogen-potassium balance on the hardiness and growth of three turfgrasses (with Beard).
- 7. Influence of nitrogen, compaction, and dethatching on the incidence of Fusarium blight on Merion (with Vargas).
- 8. Influence of rates and dates of application of nitrogen on the turfgrass composition of a Merion-Pennlawn polystand.
- 9. Evaluation of 48 soil mixes under putting green conditions.
- Influence of the soil arsenic-phosphorus balance on the growth of <u>Poa</u> annua.
- 11. Evaluation of several slow-release nitrogen carriers for utilization on turfgrasses.

- 12. Evaluation of several nitrogen treatments on the maintenance of turfgrasses on interstate highway slopes in metropolitan areas (with Beard and the Wayne County Road Commission).
- 13. Influence of nitrogen fertility and growing practices on the development of Merion Kentucky bluegrass sod (with Beard).
- 14. Effects of cultivation and wetting agents on the wettability of hydrophobic soil conditions under turf (with Beard).
- B. Projects Planned:
 - 1. Development of traffic simulator for use on turf plots (with Beard).
 - 2. Development of a technique to study quantitatively the influence of traffic and tillage on soil compaction.
- C. Projects Terminated:
 - 1. Influence of nitrogen treatment on muck soil nitrate tests and sod development of Merion Kentucky bluegrass (with English).

M.S.U. Turfgrass Weed Control Research

W. F. Meggitt

- 1. Quackgrass control with short-residual herbicides.
- 2. Selective creeping bentgrass control in Kentucky bluegrass turfs.
- B. Projects Terminated:
 - Long term effects of preemergence herbicides on various turfgrasses (with Beard).