SUMMARY

OF

TURFGRASS RESEARCH PROJECTS

AT

MICHIGAN STATE UNIVERSITY

OCTOBER 1, 1971

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 *Poa annua.*

3. Breeder seed production programs for:

   (a) Wintergreen chewings fescue

   (b) Winter hardy meadow fescue.

4. Environmental control of seedhead formation in red fescue needed to obtain a second generation per year.

5. Evaluation of bentgrass, Kentucky bluegrass, fescue and ryegrass cultivars for Michigan conditions (with Beard and Vargas).

M. S. U. Turfgrass Pathology Research

J. M. Vargas, Jr.

A. Current Projects:

1. Studies on the development of *Fusarium* blight.

2. Chemical and cultural controls for *Fusarium* blight.

3. Testing systemic fungicides for the control of three fungus diseases (powdery mildew, dollar spot and brown patch).

4. *Helminthosporium* leaf spot studies on fescue.

5. Evaluating new fungicides for the control of snow mold (*Typhula* and *Fusarium*) and determining proper time of application.

6. Evaluating the extent of nematode problems on turf in Michigan and studying possible control measures (with Laughlin).

B. Projects Planned:

1. Pesticide degradation in the soil and water.

2. Chemical control studies on leaf smut of Merion Kentucky bluegrass.

M. S. U. Turfgrass Physiology and Ecology Research

J. B. Beard

A. Current Projects:

1. Biochemical mechanisms of high temperature growth stoppage (with Kaufmann and Martin).

2. Prevention of winter injury by desiccation and low temperature.

3. Cultural and environmental factors affecting the water use rates of turfs (Shearman).

4. Mechanisms and biological prevention of thatch formation.

5. Characteristics, adaptation and cultural requirements of Poa annua (with Rieke and Bogart).

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, 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 (with Meggitt).

10. Evaluation of carbohydrate extraction procedures for Poa and Agrostis species (with Martin).

11. The anatomical and physiological basis of wear tolerance of turfs as affected by turfgrass cultural practices (with Shearman).

B. Projects Planned:

1. Physiological basis of shade adaptation.

2. Physiological basis of low temperature discoloration of warm season turfgrasses.

3. Components of competition within a turfgrass community.

4. Development of a traffic simulator for use on turfgrass research plots (with Rieke).

C. Projects Terminated:

1. Roadside establishment studies.

2. Snow mold control (transferred to Vargas).

3. Causal mechanisms of winter injury.

4. Mixture ecology studies.

5. Sod heating mechanisms and prevention.

M. S. U. Turfgrass Soils and Nutrition Research

P. E. Rieke

A. Current Projects:

1. Evaluation of herbicide and fertilizer treatments on the persistence of Poa annua in Kentucky bluegrass turf (with Carrow, Bogart, Beard and Meggitt).

2. Determination of nitrogen requirements of several turfgrasses.

3. 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 soil (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.

10. Influence of nitrogen treatment on muck soil nitrate tests and sod development of Merion Kentucky bluegrass (with English).

11. Influence of the soil arsenic-phosphorus balance on the growth of Poa annua (with Carrow).

B. Projects Planned:

1. Determination of the fertility requirements of Poa annua (with Beard).

2. Development of traffic simulator for use on turf plots (with Beard).

3. Effect of leaf litter on turfgrass growth and quality.

C. Projects Terminated:

1. Determination of soil loss from sod production.

2. Evaluation of selected fungicides and insecticides on turfgrass growth.

M. S. U. Turfgrass Weed Control Research

W. F. Meggitt

A. Current Projects:

1. Enhancement of herbicidal effectiveness through the addition of nonphytotoxic oil.

2. Evaluation of new herbicides and formulations on annual grass and broadleaved weed control.

3. Renovation of annual bluegrass fairways using preemergence and contact herbicides with cultural practices (with Beard).

4. Long term effects of preemergence herbicides on various turfgrasses (with Beard).

B. Projects Planned:

1. Reestablishment of quackgrass infested turf with nonselective herbicides combined with cultural practices.

2. Effects of Endothall on overseeded turf.

3. Herbicide-fertility study on annual bluegrass infested turfs on both muck and mineral soil (with Rieke).

C. Projects Terminated:

1. Basis of selectivity of Endothall among various turfgrass cultivars.

2. Role of Endothall in *Poa annua* control.

3. Evaluation of herbicides and vertical mowing on removal of bentgrass from a Kentucky bluegrass turf.

4. Effects of various herbicides, on seedling Kentucky bluegrass turf, for the control of broadleaved weeds.

5. Evaluation of various rates and spray dilutions of cacodylic acid in comparison with paraquat for chemical burnoff.

6. Control of creeping speedwell (*Veronica filiformis*) with Endothall and other herbicides.

7. Small plot sprayer development.

8. Evaluation of experimental and commercially available herbicides for *Poa annua* control.