

# Northwest TURFGRASS TOPICS

VOL. 22 - NO. 2

PUYALLUP, WASHINGTON

SEPT 1979

## TENTATIVE PROGRAM 33RD NORTHWEST TURFGRASS CONFERENCE

September 25, 26, 27, 1979  
Admiralty Inn, Port Ludlow, WA

PROGRAM CHAIRMAN: Earl Morgan  
Tom Wolff, and Roy Goss, Program Committee

### SUNDAY, September 23

Early Arrivals

### MONDAY, October 24

Men's golf tournament -  
tee times 10:00 to 12:00  
Women's golf tourna-  
ment - tee times 11:30 to  
1:00

3:00-5:00 Registration desk opens

### TUESDAY, September 25

Chairman — Carl Kuhn  
Welcome - Mr. Joe  
Pottenger, President,  
Northwest Turfgrass  
Association

8:30-8:40  
8:40-9:20 "Nematodes and Their  
Importance in the Pacific  
Northwest" - Dr. Fred  
McElroy

9:20-10:00 "Green is Energy" - Mr.  
John Monson and Dr.  
Jim Watson

10:00-10:20 Break

10:20-11:00 "Turfgrass Degree  
Educational Opportuni-  
ties in the Pacific  
Northwest" - Dr. J.C.  
Engibous and Mr. Tom  
Cook

11:00-11:40 "Custom Lawn Care" -  
Mr. Rod Bailey

11:40-12:20 "The H.A.S. Decline of  
Annual Bluegrass" - Dr.  
Joe Vargas, Michigan  
State Univ.

12:20-12:40 Research Report

12:40-1:00 Questions and Answers  
for Morning Session

1:00 on Free time for committee  
meetings, recreation or  
sightseeing

### WEDNESDAY, September 26

Chairman - Craig Calvert  
"Update on Sand  
Topdressing" - Mr.  
Chuck Nolan, Supt.,  
Inglewood Golf and  
Country Club, Kenmore,  
WA

8:30-9:00

9:00-9:40 "Water - A Diminishing  
Resource" - Dr. Jim  
Watson, Vice Pres. of  
Research, Toro Corp.,  
Minneapolis, MN.

9:40-10:15

Don Hoos, USGA Green  
Section

10:15-10:35

Break

10:35-11:00

Research Reports

11:00-11:30

"College Education and  
the Turfgrass Manager" -  
Larry Gilhuly, Asst.  
Supt., Seattle Golf and  
Country Club, Seattle,  
WA.

11:30-12:15

"Causes and Prevention  
of Winter Damage"

12:15-12:30

Panel Discussion

12:30-1:00

Questions and Answers  
for morning session

1:00-5:00

Northwest Turfgrass  
Association General  
Membership Meeting

5:00-7:00

Free Time

7:00

Outdoor contests, games,  
fun, recreation and no  
host social hour

Banquet, Tournament  
Awards and Dinner  
Speaker

(Program continued page 2, col. 1)

(Continued from page 1)

**THURSDAY, September 27**

8:30-9:10 Chairman Tom Wolff  
"1979 Costs and Construction of Athletic Fields" - Bill Lex, Northshore School District, Seattle, WA

9:10-10:00 Research Reports

10:00-10:20 Break

10:20-11:00 Andy Bertoni, W.A. Cleary Corp.

11:00-11:30 "There Ain't No Free Lunch" - Dr. Joe Vargas, Michigan State University

11:30-12:00 Questions and Answers for morning session

12:00 Adjourn

## LAST CHANCE TO HELP OUT IN THE CAR RAFFLE

Larry Gilhuly and his hardworking car raffle committee have reported that they are over the top in having enough money to pay for the car and some money left over. Every ticket that is sold from now on until the time of the drawing will be dollars for the research fund. We are far short of the goals that were set originally for this raffle but several thousand tickets could still be sold in the interim period between now and September 24.

Any of you who have not made diligent efforts to go out and sell tickets for this car raffle can still do so by contacting Larry Gilhuly at Seattle Golf and Country Club. Remember, you can buy all the tickets you want at \$1 each and they are tax deductible.

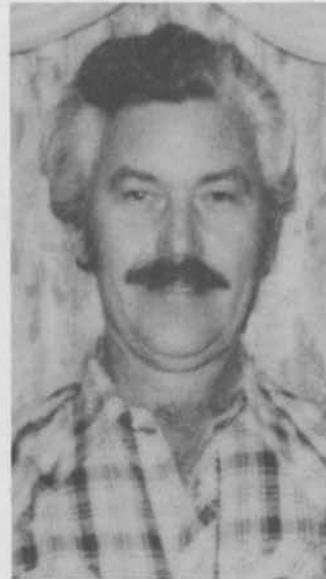


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## The President's Corner



### by Joe Pottenger

Another year has quickly flown and it doesn't seem possible that this is the 33rd meeting of the Northwest Turfgrass Association. The winter of 1978-79 was severe and left a few scars on our turfgrass landscape, but in looking around, it appears that all of you have done your jobs well and put your turfgrasses back in order. The summer of 1979 was a little hotter and drier than usual, but we have all survived that. It is through your learning experiences over the years that has helped you through these crisis periods and conferences such as the one coming up will contribute even more to your knowledge of producing even better turfgrass areas.

I urge each and every one of you to notify a neighbor or friend who should be at the conference to come and join in and become a member of the Northwest Turfgrass Association if they are not already one. It is through this association and fellowship that our learning continues and through all of our efforts we have gotten the support of Washington State University in attending to our many problems. The fellow on top is the one who learns most and then goes home and practices it.

I look forward to seeing all of you at Port Ludlow and to join you in a fine conference that your officers and directors have put together for you in 1979.

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# ANTHRACNOSE - PATHOGENIC, FACT OR FABLE

by Roy L. Goss

For more than 20 years we have collected hundreds of samples of dead and/or dying turfgrasses, principally *Poa Annua*, and submitted for intensive examination by microscope. In nearly all instances the major organism found in these samples was *Colletotrichum graminicola*, the causal agent for the symptom Anthracnose. In most of the samples a minor amount of other organisms were found none of which were considered to be of sufficient quantity to cause death of plants.

In recent years there have been a number of debates between various plant pathologists as to the pathogenicity of Anthracnose. Dr. Houston Couch presented an excellent article in *Weeds, Trees and Turf* during the summer of 1979 indicating his views on non-pathogenicity.

Dr. Joe Vargas, Plant Pathologist from Michigan State University, has presented data at a number of conferences indicating his views of Anthracnose being the cause of summer loss of *Poa annua*. A greater indepth view of Vargas's findings will be aired at the Northwest Turfgrass Conference at Port Ludlow at the end of this month.

1979, especially June, July, and August, has been one of the worst years we have seen in many for the loss of *Poa annua* in lawns, fairways and putting greens in the Pacific Northwest. In nearly all instances massive quantities of fungus organisms causing Anthracnose were found. Fruiting bodies of this disease were even found on green tissue and not altogether confined to the dead tissue.

Some plant pathologists claim that Anthracnose is confused with summer stress - both heat and moisture. There is no question but what the loss of *Poa annua* occurred under these conditions in 1979, but in most instances moisture could not be blamed for the loss of the turf. Although summer temperatures ran high part of the time, it was not determined that the lethal death point for *Poa annua* was reached in most instances where soil moisture was adequate.

Astute turfgrass managers who got onto the problem early and treated with systemic fungicides such as Tersan 1991 at a rate of 2 oz. per 1000 sq. ft. were able to check and bring the problem under control. In the writer's view, this smacks of at least some pathogenicity.

Now let's look at the whole picture. What happens when the *Poa annua* plant is under stress from both heat and moisture there are obviously some metabolic changes that occur within the plant. The plant itself loses vigor although perhaps not enough to die. During this same period of time fungus exists in maximum populations. It is the writer's view, therefore, that it is a combination of factors of both heat and moisture stress and the presence of the organism result in the loss of turf. Weakened turf can be killed by mildly pathogenic organisms.

To further complicate the matters, the writer observed during many investigations during the summer of 1979 that no bentgrass was lost through either the stress nor the organism itself. This would appear to be further evidence that there is pathogenicity involved. I have to get in two cents worth at this time to further extoll the virtues of

bentgrass vs. *Poa annua*. If you wish to constantly teeter on the brink contending with the idiosyncraces of *Poa annua*, you may continue to do so. However, we have programs to offer to culture near perfect bentgrass.

Some of you who got hit by Anthracnose this summer also got severely injured by winter desiccation during the winter of 1978-79. Look back at the results of that condition and you will find that only the *Poa annua* was severely affected and not the perennial bentgrasses. This adds up to two strikes that bentgrass is best. There is no question but what it takes a better turfgrass manager to maintain beautiful *Poa annua* than it does to maintain beautiful bentgrass. We have previously outlined methods of maintaining the best growth, vigor, and beauty of *Poa annua*. You must be on top of the problem with preventive measures at all times.

There is still the possibility that with summers like 1979 that nematodes could play an important role. One such infestation was discovered in Skagit County near Mount Vernon. It is possible that nematodes could be working in association with Anthracnose or some other organisms to cause the problems that we found this year. Dr. Gary Chastagner and Dr. Fred McElroy will be completing a survey of golf courses in the state before the end of summer and will have a report later with respect areas of infection and concentrations of nematodes.

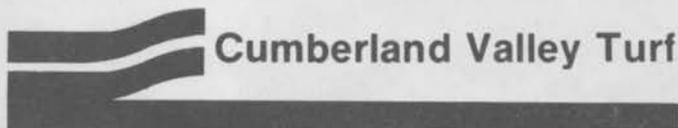
Let's remember that good culture will help to prevent many problems. In other words, reduce nitrogen applications during the hotter weather. Keep potassium levels high. Maintain adequate sulfur and iron levels and provide ample phosphorus for the plants you are growing, whether it be *Poa annua* or bentgrass. Micronutrients, of course, play vital roles where new construction has just occurred, principally on sand.

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# A TRIBUTE TO AN ACHIEVER



When a man follows his life's work for 61 years and even while letting go - expresses the same enthusiasm and enjoyment in a job as when he began, it is an only too rare match of man placed perfectly in his chosen field.

Such a man is Ken Putman, former golf course superintendent at Sunlands Golf and Country Club at Sequim, Washington, who announced his retirement as of the first of January, 1979. Although he is retired, Ken will be available on a consulting basis.

Ken's "love affair" with every aspect of golf began in 1918 when he was 12 years old and caddied at Jefferson Park Golf Course in Seattle. He worked in the Pro Shop at University Golf Course during high school and after. During these days golf clubs were manufactured and arrived at golf shops in a rough state and required considerable hand work and finishing and the painstaking work appealed to Ken.

In 1928 he was offered the opportunity to help in the construction of the Los Gatos Golf Course in California, which he accepted and remained at Los Gatos until 1932, when he returned to Seattle as golf course superintendent for Olympic Golf and Country Club. He became the golf professional in 1934 and added the club management to his other duties in 1938 and continued so until 1946. Then he acquired some much needed help so he could relinquish his other duties and devote his full time as the club professional and superintendent.

In 1955 he accepted a new challenge as superintendent at Seattle Golf Club. This is the year he and Pauline were married. He remained at Seattle - being loaned to the Yakima Park Department at one time to build a 9-hole course for them, Fisher Park, Par 3, - until accepting the offer to build the Sunlands Course from start to finish, another goal he wished to fulfill. Ken began this task in December 1969.

During his career he takes special pride in certain achievements along the way. Being able to install the first automatic underground sprinkling system at Seattle Golf Club and successfully removing 60 acres of sod for renovation and replacement of that course. And, Sunland, of course, which is not yet in the polished, finished and mature state the "superintendent would like". That will be the task of the new superintendent, Walt Stender, who worked for Ken for two years at Seattle Golf Club and came to Sunland with Ken.

Ken has served as President of the Sequim Rotary during



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1978 as well as being an active Shriner. He has served as President of the Northwest Golf Course Superintendents Association 3 times during his career and is a past-President of the Northwest Turfgrass Association. This vital, robust and energetic man has given so much to himself to his profession and has inspired others to share his devotion, his knowledge, his concentrated perfection in his chosen field.

Whatever pursuits follow in retirement it is certain Ken Putnam will continue to give his great and expansive zest for living that has made his 61-year career so successful. He has only just begun.

**EDITOR'S NOTE:** This article was borrowed from the Sunland views, the club paper, and was written by Betty R. Taylor.

Those of you attending the Northwest Turfgrass Conference at Port Ludlow September 24-27, will have an opportunity to greet Ken and to wish him well in his retirement years. To show you that Ken is still active, he has agreed to serve as Chairman of the Golf Tournament which will take place on Monday, September 24.

# NITROGEN, PHOSPHORUS AND POTASSIUM EFFECTS ON QUALITY AND GROWTH OF KENTUCKY BLUEGRASS AND CREEPING BENTGRASS

by N.E. Christians, D.P. Martin, & J.F. Wilkinson

## ABSTRACT

Much of the previous work involving the effects of N, P and K on the growth and quality of turfgrasses has not involved methods by which the interactions among these nutrients could be evaluated.

In the present investigation a double cubed composite statistical design was used to investigate the N, P and K requirements of Kentucky bluegrass (Merion) and creeping bentgrass (Penncross) under controlled environmental conditions in sand culture. Nitrogen treatments ranged from 6 to 294 ppm, P from 2 to 98 ppm, and K from 4 to 196 ppm in solution. The objectives of the investigation were to study the effects of a wide range of N, P and K levels on turfgrass growth and quality and to observe the nutrient interactions.

Quadratic relationships for dry tissue production of Merion in response to increasing levels of N and K were observed. Tissue production reached a maximum at 100 ppm N and 144 ppm K. Dry tissue production of Penncross in response to N was also quadratic, with a maximum of 96 ppm. Tissue dry weight increased linearly with K to the 196 ppm level. The most desirable quality characteristics for Merion occurred at the N concentration of 96 ppm and a P concentration of less than 2 ppm. Maximum response to K was not reached at the 196 ppm treatment. Penncross attained these characteristics at an N concentration of 54 ppm and less than 2 ppm P. Again maximum quality had not been reached at a K level of 196 ppm. Potassium may play a more important role in turfgrass fertilization than was previously realized. Penncross demonstrated maximum root production at a solution concentration of 6 ppm N and 196 ppm K. Minimum production of roots occurred at 150 ppm N and 64 ppm K. An interaction between N and K in solution was observed in the quality response of creeping bentgrass. As the level of K was increased, less N was required to attain maximum quality. It is possible that addition of higher levels of K to this species can effect its requirements for N.

**EDITOR'S NOTE:** It may be a surprise to the writers of this article as to the value of potassium, but it is no surprise to those of us in the Pacific Northwest who have been advocating the use of higher levels of potassium for 25 years. This is not to discredit this work; in my view, this is an outstanding piece of research. There is no way currently that the ppm of nutrient levels used in this test can be correlated to field application. This will give you some idea of the

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relative requirements of N, P and K for best turfgrass growth. Take particular notice of the very low levels of phosphorus required for optimum turfgrass growth and quality. Need we say more?

# PARAQUAT POISONING AND TREATMENT

"Connecticut Greenhouse Newsletter"

Paraquat is a non-selective contact herbicide that kills plants quickly but which is inactivated in the soil and thus has no residual effect.

Paraquat, like many pesticides, is a poison and serious poisoning has occurred through accidental or deliberate swallowing of the product. Ingested, Paraquat is absorbed into the blood and travels to the lungs where it produces fibrosis or scarring of the lung tissue, which interferes with breathing and oxygen uptake and may result in death of the patient. However, its oral toxicity does not constitute a direct hazard in agricultural application. No fatalities have been reported as a result of skin contact or inhalation of Paraquat during the course of agriculture use. The only injuries sustained from use have been due to local irritation. These injuries have been minor and temporary and consist of eye, skin and/or throat irritations which go away within 24-48 hours. These injuries can be avoided by following the directions and warnings on the Paraquat label. The safety of Paraquat as an agriculture chemical has been well documented by Calandra and Kennedy (1) and Swan (2). Paraquat has gained a reputation as a "poison without an antidote". The reputation may never have been justified. A treatment for Paraquat poisoning is available and involves the use of Bentonite clay as an antidote (Aleck, J.R., Chevron Chemical Company, personal communication). Bentonite and similar clays bind Paraquat in the gut and prevent its absorption into the blood. As is the case with most antidotes, it must be used in conjunction with certain supportive measures. Paraquat that was absorbed prior to the start of clay treatment must be removed from the body. This is accomplished through diuresis and/or blood filtering. The clay and supportive treatments require hospitalization and careful supervision by a physician. However, the use of both an antidote and supportive treatment is not unique to Paraquat poisoning.

For best results, treatments for Paraquat poisoning

should begin within 12 hours of swallowing a potentially lethal dose. According to Calandra and Kennedy (1970) the lethal dose for an adult human may be 1/2 to 1 fluid ounce of Paraquat formulation, which is equivalent to a dose of 50 to 100 mg/kg of Paraquat. All cases of Paraquat ingestion and instances where large quantities have been spilled on the skin should be considered potentially serious and must be brought to the attention of a physician immediately. The doctor should be urged to contact Chevron Poison Information Center at (415) 233-3737 as soon as possible for professional assistance, a source of Bentonite and analytical support.

Chevron Chemical Company is expected to begin producing and marketing a new odorized formulation of Ortho Paraquat CL containing Valeric acid (Wayne Ennen, Chevron Chemical Company, personal communication). The odor of Valeric acid is quite pungent and should serve as a deterrent to anyone who might attempt to ingest Paraquat.

In summary, it can be stated that Paraquat presents very little hazard to the operator if used according to label instructions.

## REFERENCES

1. Calandra, J.C. and G.L. Kennedy, Jr. 1970. The toxicity of Paraquat. National Non-tillage Conference. 4 p.
2. Swan, A.A.B. 1969. Exposure of spray operators to Paraquat. Brit. J. Indust. Med. 26:322.



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## GAS SHORTAGE - 1979

**EDITOR'S NOTE:** Although this article was written principally for the management of golf courses, those of you in other turfgrass management areas can readily adapt some of these ideas to your own gas saving practices. Contributions from O.M. Scott Company.

For the second time in the past five years, your resources and ingenuity are being put to a severe test via this year's gas shortage and allocation system. How do you plan to cope with it? What will the impact be on your turf management programs? How long will the allocation system last and what can you do about the problem?

How long the present allocation system will be in effect is anybody's guess. Right now it looks as if it will be mid-summer before there is any easing of the tight supply. Even if more crude oil becomes available, some of it will have to be diverted to the manufacture of home heating oil. These reserves must be built up to ensure an adequate supply for the coming winter. It, therefore, appears we will have a repetition of 1974.

What impact the shortage will have on your turf management programs will be determined largely by the type of program you are now following. Courses now manicured to the Nth degree will have much more flexibility than those where just the basics are performed. Most courses have areas which do not have to be mowed on a weekly basis. How much gas could be saved by cutting  
*(Continued on page 9, col. 1)*

## DR. JOHN ROBERTS AND THE NH TURFGRASS PROGRAM

The University of New Hampshire hired Dr. John Roberts, formerly the Research Associate in the Turfgrass Program of Washington State University at Puyallup, in August 1979. John was chosen from a field of a number of applicants for his knowledge of turfgrass science and his ability to conduct field research and assimilate the data. Although John was with us for less than 1-1/2 years, he initiated a significant number of new projects and concluded several important investigations. Among them were careful studies of growth regulators including new experimental materials, soil-water movement and leaching studies through sand profiles, overseeding methods following Endothall or Endothall-Bensulide applications for the control of *Poa Annua*, and cooperated in a number of other turfgrass projects at the same time. It goes without saying that John is already badly missed, but one must spring when the opportunity is right.

John will be conducting a 50% turfgrass extension program and 50% teaching at the University of New Hampshire at Durham in the Plant Sciences Department. He has already reported a hot, sticky summer has brought on a rash of management problems including severe disease outbreaks. That's the best way to get started in this business - dive in when the problems are hot. Any of you who ever get back in the New Hampshire area, I am sure John would be happy to see you.

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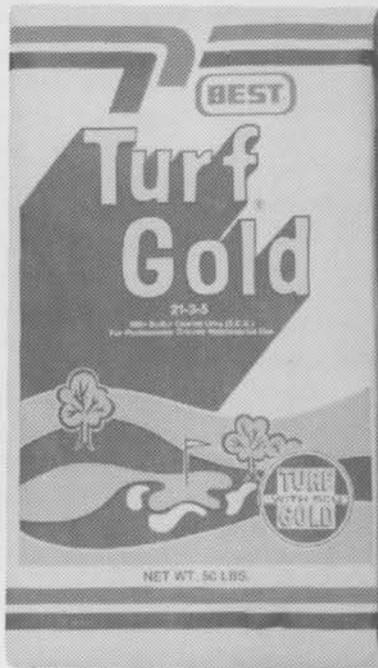
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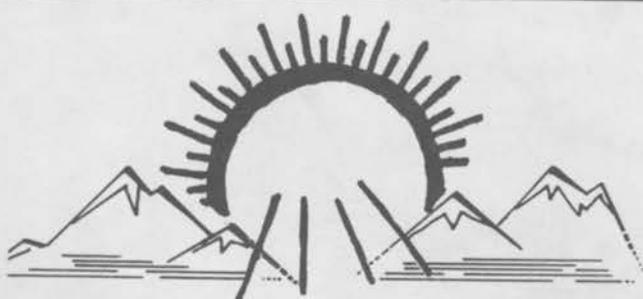
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## 33rd Northwest Turfgrass Conference September 25, 26 & 27



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(Continued from page 7, col. 1)

roughs bi-weekly and using only a weekly mowing with an intermediate rough about twenty feet wide around the perimeter of the fairway? The game of golf should penalize the errant shot; so, if the rough twenty feet from the fairway is little longer than normal.....!!

Now is the time to sit back and review your records. How many weekly/monthly man hours are spent doing normal golf course maintenance? If you now mow greens every day, by going to six cuttings a week 14% fuel consumption will be saved on that operation. Instead of mowing all tees three times per week, try mowing half of the tees every day. Chances are you will reduce your total man hours by approximately 10%. That means 10% fuel savings on tee mowing. What about mowing seldom used tees (championship and/or some ladies tees) twice instead of three times per week?

Examine your gasoline consumption records. What pieces of equipment (other than fairway mowers) use the most gas? How does that fuel consumption relate to the area being maintained? Which piece(s) of equipment provide the best fuel consumption to area maintained ratio? Can you get more utilization out of them or replace others with more of this type?

Most gasoline users are now on an 80-85% allocation of what they received for the corresponding month of last year. How can you live within the allocation system and still provide the quality conditions your golfers are used to?

First, get to know your local gas station owners. They can be your best ally in an emergency situation.

**EXAMPLE -** You're in the middle of a major tournament and your tank runs out. Your normal supplier tells you he can deliver in 48 hours.

Your best backup is to have an alternate local supplier. Secondly, get to know your state allocation officer. When the situation warrants, he can order your normal supplier to deliver gas to you. Most states own the rights to 3-5% of the storage capacity of major gas and oil suppliers. This reserve or set-aside can be used by your state energy allocation officer for those who file for a temporary hardship allotment.

**EXAMPLE -** Your club has just hosted the State Open or Amateur. Due to the intense preparation associated with this type of tournament, you have used up your monthly allocation by the 20th of the month! Now is the time to file for an emergency allocation.

Third, investigate the possibility of increasing your storage capacity. A quick check of your records will show your average annual fuel consumption. If you can increase your storage capacity to that amount, you will be unaffected by future shortages and allocation systems. Even major suppliers will fill your tanks if they can drop a tanker full of gas at one stop.

Fourth, what alternatives can you use? Systemic fungicides can reduce the frequency of application. Disease resistant turfgrass varieties need fewer applications per year. Overseeding can be beneficial. The juvenile vigor that young grass exhibits makes it less prone to disease than older grasses. Combining operations can help save gas.

Most of you survived the shortage of 1974 without too many problems. How long will this one last, when will the

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Communications concerning content of this paper should be directed to Dr. Roy Goss, Editor, Western Washington Research and Extension Center, Puyallup, Washington 98371.