A Look At ...

Seed

A Look At Turfgrass Seed Management

Factors Contributing
To Faster Germination
In Creeping Bentgrass

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Everybody knows that the right mixture of water, fertilizer, air, and temperature is required to get seeds to sprout.

If one of those ingredients is out–of–balance, seed may take many days or weeks to germinate.

FAST GERMINATION is important to compete with weeds.

But even on a golf course putting green with sterilized soil, FASTER GERMINATION is beneficial in holding the fragile sand mix in place and minimizing erosion.

New data from Ph.D. candidate Marcus Jones and Professor Nick Christians at Iowa State University, in Ames, has shed light on varietal differences in GERMINATION SPEED and what physical seed properties favor emergence.

The Iowa State University study was unique in that it LOOKED AT GERMINATION IN A BROADER CONTEXT.

National Turfgrass Evaluation Program (NTEP) traditionally tests varieties for GERMINATION across locations (see most recent averages below).

But NTEP data IS BASED ON ONE SINGLE SEED–LOT.

A particularly good seed–lot can make a mediocre cultivar appear to be a world–beater or vice versa.

Many environmental conditions in the seed field go into making a seed–lot faster or slower to sprout, including —

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1.   Harvesting even a day or two early before the seed is totally ripe can stunt a seed–lot's field emergence with–out affecting its lab germ figures.

The seed tag numbers can look good but the lot is sluggish coming out of the ground.

2.   Final watering and crop dry–down are a critical balancing act for the seed farmer.

Water too late and the harvested seed will be damp and may mold.

Dry down the crop too early and you can stunt the seed's carbo–loading.

3.   Many other subtle touches in the seed field such as fertilizer, pesticides, growth regulators — and the local weather — impact how fast your grass will emerge.

The Iowa State study was particularly insightful because it was the first to use MULTIPLE SEED–LOTS of each variety, thereby averaging across the ups and downs of seed farmers.

The objective of this research was to study the germination characteristics of 15 modern cultivars of Creeping Bentgrass —

' L–93 ', ' T–1 ', ' Alpha ', ' Penn A–1 ', ' Penn A–4 ', ' Crystal Bluelinks ', ' Pennlinks II ', ' Penncross ', ' Tyee ', ' 007 ', ' Mackenzie ', ' SR 1150 ', ' Memorial ', ' Independence ', and ' Declaration '.

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For each variety they included 2 to 4 seed–lots from production year 2007.

The researchers studied the seedlings in both the lab and field.

Iowa State University has one of the country's most respected seed science laboratories.

Standard germination tests were conducted according to the rules established by the Association of Official Seed Analysts (AOSA).

They found that ' T–1 ' had THE HIGHEST SEED FINAL GERMINATION RATE, SYNCHRONY, and seed weight, compared to ' Penncross '.

SYNCHRONY was defined as THE AMOUNT OF TIME BETWEEN 25 AND 75 PER CENT GERMINATION.

Better SYNCHRONY means FEWER SLUGGISH SEED.

Other cultivars that did well in SYNCHRONY were ' Alpha ', ' Independence ', and ' Declaration '.

Seed size did not correlate with speed of initial germination, but it did with final germination and SYNCHRONY.

Jones and Christians concluded that MODERN VARIETIES DO INDEED HAVE FASTER GERMINATION THAN ' PENNCROSS '.

' T–1 ' surpassed ' Penncross ' in 3 germination parameters.

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Jones speculated that the success people are having with INTER–SEEDING ' T–1 ' could be directly related to its faster, more synchronized germination.

And perhaps past INTER–SEEDING FAILURES MIGHT BE TIED TO USING ' PENNCROSS '.

Seedling Vigor of Bentgrasses in the NTEP 2003 – 2008 Putting Green Trial.

Data Were Averaged Over University Sites In Arkansas, Arizona, Kentucky, Michigan, New York, Pennsylvania, and Quebec.

' T–1 '	6.5	' Shark ' (23R)	5.8
' Penncross '	6.4	' Tyee ' (SRX 1GD)	5.7
' Pennlinks II '	6.3	' Bengal '	5.6
' 007 ' (DSB)	6.0	' CY–2 '	5.6
' Declaration '	6.0	' Villa ' (IS–AC 1)	5.6
' Alpha '	6.0	' Mackenzie ' (SRX 1GPD)	5.5
' Independence '	6.0	' Kingpin ' (9200)	5.4
' LS–44 '	6.0	' SR 7200 '	4.4
' Cobra 2 ' (IS–AP 9)	5.9	LSD Value	0.7

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NORAHG is National Organization Responding Against HUJE that seek to harm the Green Space Industry.

NORAHG is a NATIONAL NON PROFIT NON PARTISAN organization dedicated to reporting the work of RESPECTED and HIGHLY RATED EXPERTS who promote PESTICIDE REALISM and PESTI-CIDE TRUTHS.

Scientific research PROVES that pest control products cause NO HARM and can be USED SAFELY.

NORAHG produces A LOOK AT, a series of reports providing TECHNICAL INFORMATION on issues such as Career Management, Golf Course Maintenance, Green Alternatives, Summer Stress, Turfgrass Pests, and Turfgrass Species.

A LOOK AT is destined for the green space industry, nationwide across Canada, the United States, and overseas.

A LOOK AT is committed to SOUND SCIENCE, as well as ground breaking original reporting that informs, entertains, and creates real change.

NORAHG also produces FORCE OF NATURE, reports that present THE WHOLE TRUTH FROM AN INDEPENDENT PERSPECTIVE about environmental issues, including anti pesticide terrorism.

NORAHG also manages the Library Computer Access and Retrieval System for all anti pesticide terrorist acts of subversion.

The NORAHG Library Computer Access and Retrieval System is a VAST ARCHIVE of DOCU-MENTS, AUDIO CLIPS, and VIDEOS on ALL anti pesticide activities — it has been made AVAIL-ABLE to anyone interested in litigation.

These ARCHIVES contain names, statements, activities, and affiliations of ALL anti pesticide vermin, including government officials, as well as charitable prohibition terrorist organizations that DO NOT DESERVE ANY tax exempt status.

All information, excerpts, and pictures contained in A LOOK AT were retrieved from the Internet, and may be considered in the public domain.

The information presented in A LOOK AT is for preliminary planning only.

Before making a final decision, the turf manager is expected to obtain trusted expert advice from extension specialists, local distributors and/or agronomists.

All decisions must take into account the prevailing growing conditions, the time of year, and the established management practices.

All products mentioned in A LOOK AT should be used in accordance with the manufacturer's directions, and according to provincial, state, or federal law.

For the official advantages, benefits, features, precautions, and restrictions concerning any product, the turf manager must rely only on the information furnished by the manufacturer.

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The mention of trade names does not constitute a guarantee or a warranty.

A LOOK AT, and their various incarnations, was the brainchild of William H. Gathercole (now retired) and his colleagues.

Here is a brief summary of Mr. Gathercole's career —

Fields of study — Horticulture/Agriculture, Mathematics, Physics

Alma mater — McGill University • University of Guelph • the first person ever to obtain university degrees and contribute to both the professional lawn care and golf maintenance industries

Expertise in — environmental issues and anti pesticide terrorism • turf and ornamental maintenance and troubleshooting • history of the industry • sales and distribution of seeds, chemicals, fertilizers, and equipment • fertilizer manufacturing and distribution

Notable activities — worked in virtually all aspects of the green space industry, including golf, professional lawn care, distribution, environmental compliance, government negotiations, public affairs, and workplace safety • supervisor, consultant, and, programmer for the successful execution of hundreds of thousands of management operations in the golf and urban landscape, as well as millions of pest control applications • advisor, instructor, and trainer for thousands of turf and ornamental managers and technicians • pesticide certification instructor for thousands of industry workers • founder of the modern professional lawn care industry • prolific writer for industry publications and e–newsletters • first to confirm the invasion of European Chafer insect in both the Montreal region and the Vancouver / Fraser Valley region • with Dr. Peter Dernoeden, confirmed the presence of Take All Patch as a disease of turf in Eastern Canada • with Dr. David Shetlar, confirmed the presence of Kentucky Bluegrass Scale as an insect pest in South Western Ontario, and later, in the Montreal and Vancouver regions

Special contributions — creator of the exception status that has allowed the golf industry to avoid being subjected to anti pesticide prohibition • creator of the signs that are now used for posting after application • co–founder of annual winter convention for Quebec golf course superintendents • the major influence in the decision by Canadian Cancer Society to stop selling for profit pesticide treated daffodils • the only true reliable witness of the events of anti pesticide prohibition in the town of Hudson, Quebec • retired founder of A LOOK AT and FORCE OF NATURE reports

Notable award — the very first man of the year for contributions leading to the successful founding of Quebec professional lawn care industry, which served as a beach–head against anti pesticide activists in the 1980s and 1990s

Legacy — Mr. Gathercole and his colleagues … designed and implemented strategies that reined anti pesticide activists to provide peace and prosperity for the entire modern green space industry across Canada • orchestrated legal action against anti pesticide activists in the town of Hudson, Quebec • launched the largest founding professional lawn care business in Canada • quadrupled the business revenues of one of the largest suppliers in Canada

Mr. Gathercole is now retired, although his name continues to appear as founder of A LOOK AT and FORCE OF NATURE reports.

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