



New Trends and Technology in Sports Turf

Featuring Representatives from STMA
Commercial Companies:

UBU Sports, Inc.
g2 turftools, inc.
Spectrum Technologies, Inc.
Bulldog Field Equipment
Xtreme Turf Makeover
Wiedenmann North America
Performance Nutrition
PICKSEED
Campey Turf Care Systems



Please Welcome UBU Sports, Inc.



ground gear for athletes
SPORTS SURFACING SPECIALISTS

Please click the mouse or the arrow key to advance
to the next slide and begin the presentation.



GROUND GEAR FOR ATHLETES

The Future of Synthetic Turf
Mark Nicholls

The Future of Synthetic Turf

Mark Nicholls

Email: markn@ubusports.com



UBU SPORTS

ground gear for athletes



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Mark Nicholls



Advanced Equipment



Infill Reclamation



Portable Surfaces



UBU SPORTS

Field Safety

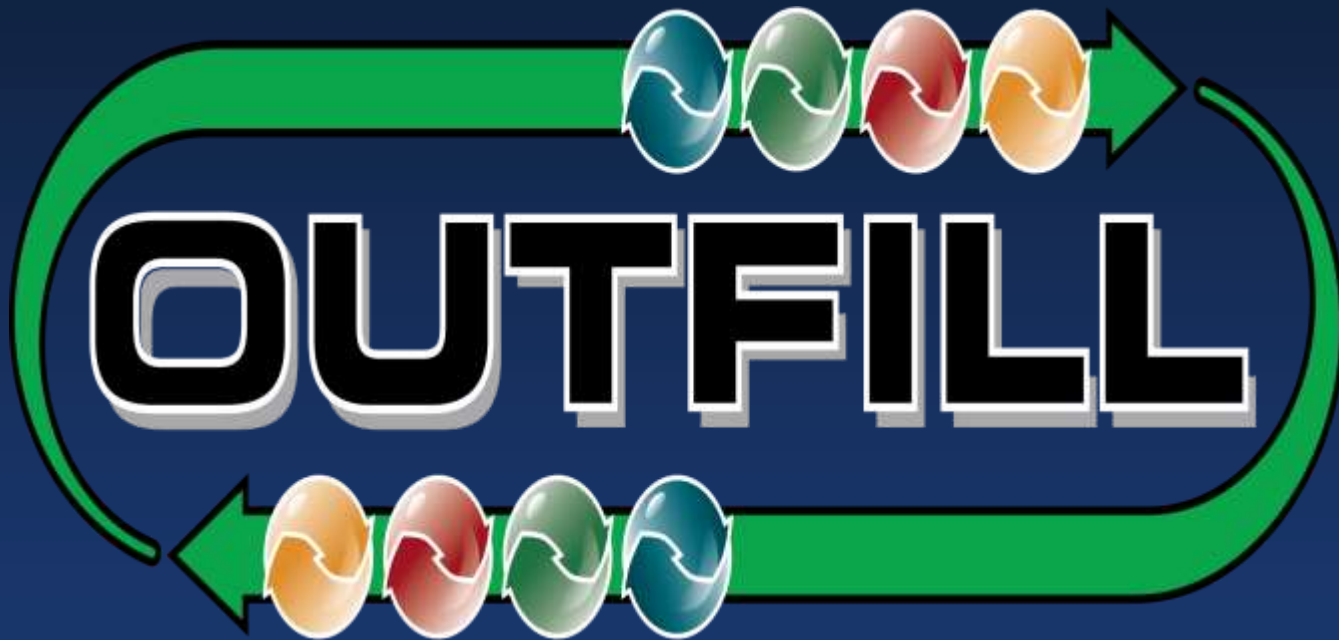
ground gear for athletes



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OUTFILL

**Infill
Extraction
and
Removal**

**Infill
Reconditioning**

**Surface
Hardness
Remediation**



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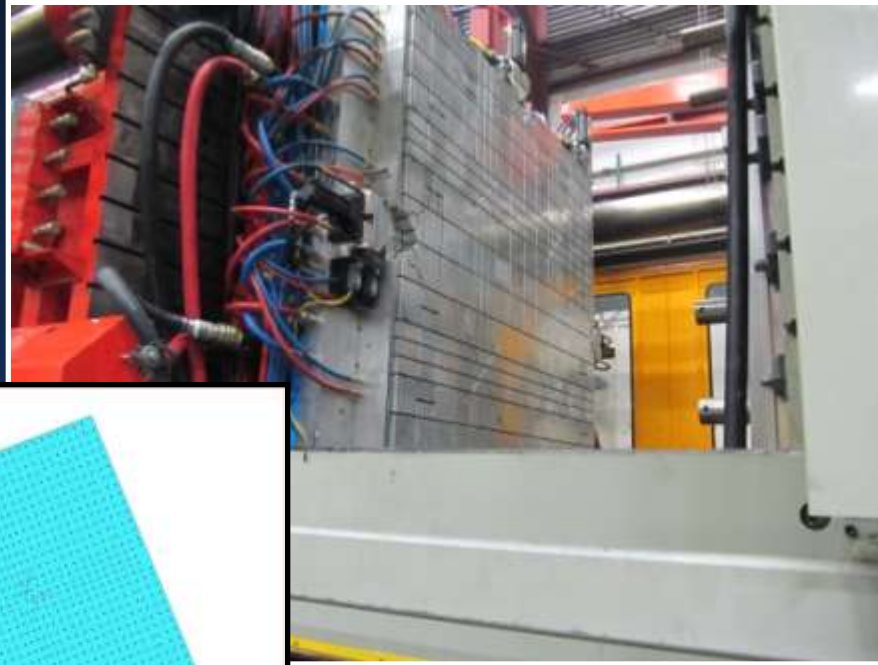
ground gear for athletes



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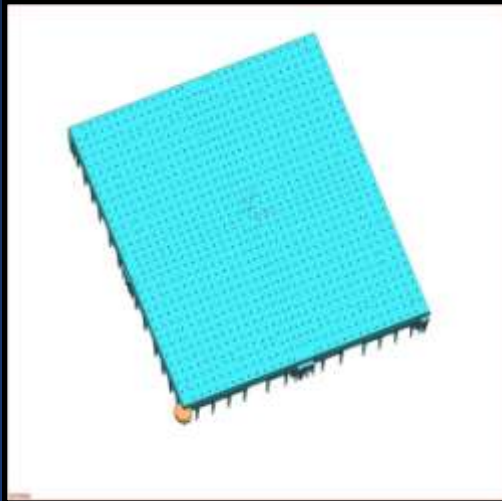
Mark Nicholls



TURFqubes

**Portable
Synthetic
Turf
System**

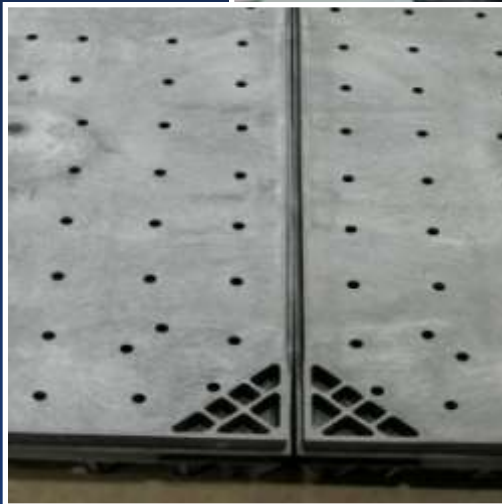
**Injection
Molded Trays**





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TURFqubes

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Blue Hand
Advanced
Turf Gear

Removable End
Zones

Active
Panels



ground gear for athletes



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Field Safety



TURFindustry
Gmax Testing
Equipment

Shock
Attenuation

A-Triax
Clegg Hammer

Clegg Hammer



A - Triax





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Field Safety



TURFindustry

Infill Depth
Evaluation

Evenness
Planarity

Temperature
Requirements



H.E.A.T.
HEAT EVALUATION ACTION TOOL

Enter your location's zip code in the box on the right to calculate the heat index for your area based on current conditions.

The practice regions that all student athletes are required to adhere to during the Summer months and the Fall sports season will appear below the calculated heat index.

Conditions for Miami, FL at 2:52 pm EDT

76°F Condition: Mostly Cloudy
Wind: direction: 130° speed: 12 mph
Humidity: 50%

Condition: Partly Cloudy
High: 81° Low: 66°

Heat Index: High risk

Athletic Activity Practice Recommendations

- ⚠️ Maximum of 3 hours of practice today
- ✅ Provide ample amounts of water
- ✅ Water should always be available and athletes should be able to take in as much water as they desire
- ⚠️ Watch/monitor athletes for necessary action



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Field Safety



TURFindustry

Enhanced
Reporting
Systems

Document
Retention

Risk Mitigation
Standards

UBU ground gear for athletes SPORT SURFACING SPECIALISTS 1.800.828.8700

GMAX Reporting System

Testing Information

Facility Name: Opponent:

Name of the Person Supervising the Testing:

Ambient Air Temperature: °F

Weather Condition:

Date of Testing: JAR 01 2012

Time of Test: 01 00 AM

Type of Facility:

Type of Testing Equipment Used

☐ Triaxle ☒ Clegg

Testing

Tested Area	Test Results	Comments
POINT 1	<input type="text"/>	<input type="text"/>
POINT 2	<input type="text"/>	<input type="text"/>
POINT 3	<input type="text"/>	<input type="text"/>
POINT 4	<input type="text"/>	<input type="text"/>
POINT 5	<input type="text"/>	<input type="text"/>
POINT 6	<input type="text"/>	<input type="text"/>
POINT 7	<input type="text"/>	<input type="text"/>
POINT 8	<input type="text"/>	<input type="text"/>
POINT 9	<input type="text"/>	<input type="text"/>
POINT 10	<input type="text"/>	<input type="text"/>

CLICK TO SHOW RANDOM AREA POINTS

Random Areas Test Results Location Comments

Recommended Practices for the Maintenance of Infill Surfaces for NFL Games

UBU-SPEED SERIES-SG-M

Target Depth of Infill	30.0 MM
Allowable Deviation	± 5MM
Coefficient of Retention	0.95



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UBU SPORTS



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Please Welcome g2 turftools, inc.



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BOOTH 501



precision turf equipment for sports fields and golf courses



G2 TURFTOOLS PRODUCTS MADE IN THE USA
JACK ALLEN SOCCER COMPLEX





PATENTED TURFROLLER
JACK ALLEN SOCCER COMPLEX





PATENTED TURFFLOAT
DECATUR HIGH SCHOOL PRACTICE FACILITY





PATENTED TURFRACK
WILSON MORGAN SOFTBALL COMPLEX



2012 STMA Award for Commercial Innovation

PATENT PENDING TURFPLANER
SPORTS TURF SOLUTIONS





LASERED SURFACE RENOVATION
SENECA HIGH SCHOOL FOOTBALL STADIUM





LASERED SURFACE PREP & SOD RENOVATION
AUBURN UNIVERSITY JORDAN HARE STADIUM



CONVENTIONAL SURFACE RENOVATION
GRISSOM HIGH SCHOOL SOCCER





LASERED SURFACE RENOVATION
JONES COUNTY JC BOBCAT STADIUM





LASERED SURFACE RENOVATION
JONES COUNTY JC BOBCAT STADIUM



LASERED SURFACE RENOVATION
DRIVING RANGE TEE REGATTA BAY GOLF CLUB





AUTO GRADE SURFACE RENOVATION
BLUE WATER CREEK POLO CLUB





LASERED SURFACE RENOVATION
FAULKNER UNIVERSITY SOCCER





AUTOGRADE BASEBALL LIP REMOVAL
UNIVERSITY OF NORTH ALABAMA





WARNING TRACK PREPERATION
LAWERENC COUNTY HIGH SCHOOL





SPREADING SPOILS
BLUE WATER CREEK POLO CLUB





LASERED SURFACE RENOVATION
JONES COUNTY JC BOBCAT STADIUM

SCHEDULE A DEMO AT YOUR FACILITY



BASEBALL LIP REMOVAL
STARRS MILL HIGH SCHOOL





*turf*planing*services*

Licensed Service Providers



SPORTSTURF
SOLUTIONS, LLC

TURFPLANER

OF GEORGIA

a division of Laser Products, LLC

ALTERNATIVE*turf*PLANER



THE ALTERNATIVE ANSWER TO TURF MAINTENANCE

SERVICING LOUISIANA
225-718-2787

TURFPLANER
of
CAROLINA

prorain



Southern Turfplaning Services
T. Mac Wilder & Associates

BOOTH 501



Please Welcome Spectrum Technologies, Inc.



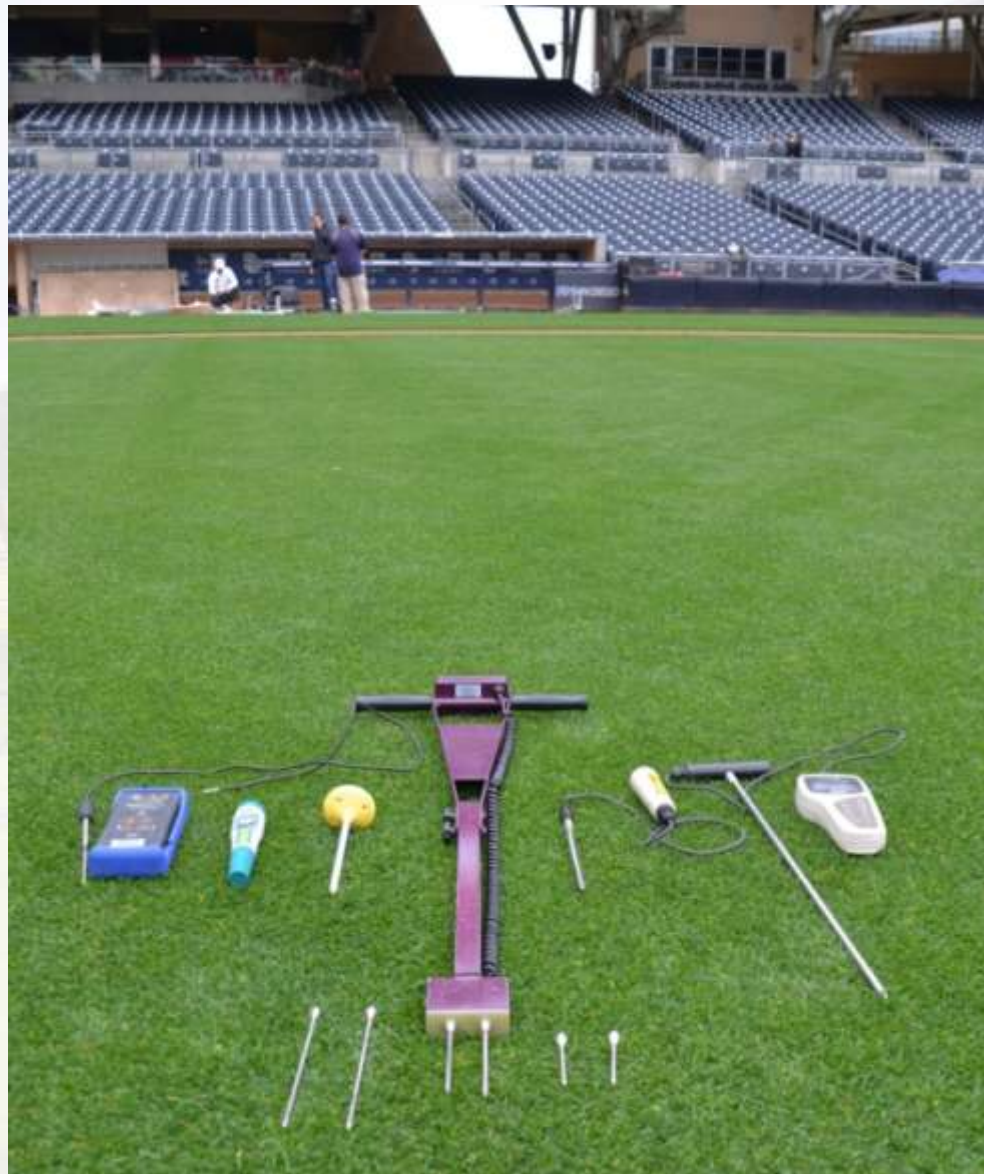
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Measurement Technology

"To Measure is to Know"

Common Problems for Turf Managers....Spectrum Has Solutions

- Soil Moisture
- Compaction
- Salinity
- Light



Firmness and Soil Moisture have a Relationship



Deeper Roots = More Stable Playing Surface



Spectrum TDR Moisture Meters

**Four Different Probe Lengths
Easily Changeable**

- 1.5 " (3.8 cm)
- 3" (7.5cm)
- 4.8" (12cm)
- 8" (20cm)



Readings are Quick and Easy

Displayed as %VWC

A = Average

N = Number of Readings
Taken

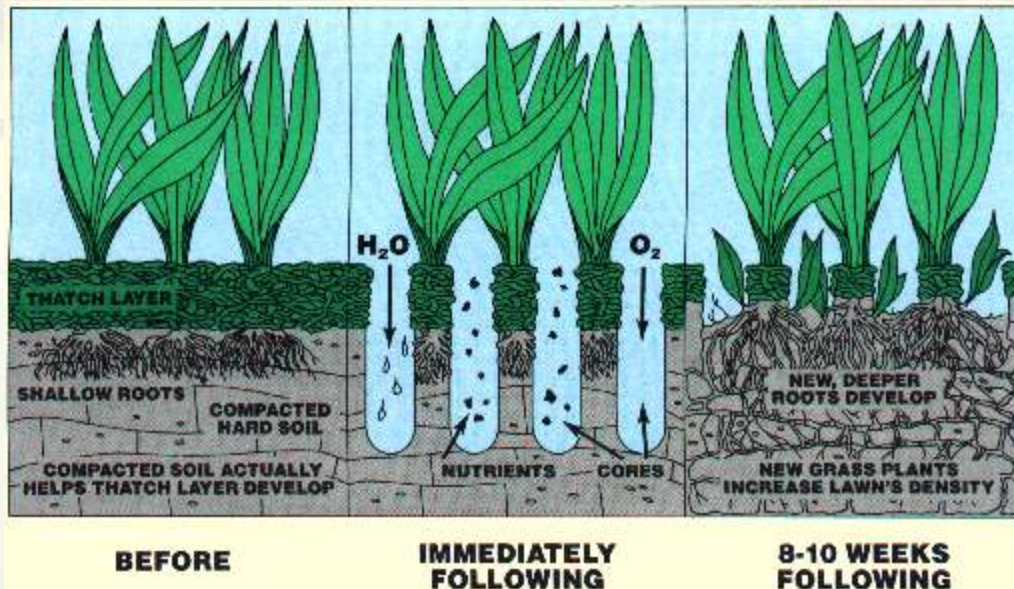


Heavy Foot Traffic



Surface Compaction

Compaction



- Decreased Infiltration
- Decreased Microbial Activity
- Decline in Root/Shoot Growth
- Extreme Firmness at Surface

Field Conditions can Prevent or Assist in Player Injury





Analog Compaction Tester



Data logging with GPS option

Salinity Damage



Turf Irrigated with Reclaimed Water

-Stowell, PACE Turf



Ohio State U.

- Reduced Infiltration Rates
- Reduced Nutrient Uptake
- Contributes to Rapid Blight

Photo of Rapid Blight – Cool Season Turf

#1 Reason for High Salt Levels

Inadequate Leaching



Spectrum Direct Soil EC Probe

- Directly Insert into Soil
- No Need to Mix Paste
- Auto Temperature Compensated
- Accurate Readings within Seconds
- Available in 8" or 24" T-Handle Probe





Patent Paired Sensor



Digital Display



SHADE = Unfriendly Turf Environment



Drawing of Al-Khor Stadium - 2022 Qatar World Cup



Estadio Nacional in Brazil – 2014 World Cup



Quantum Light Meter (PAR Light 400-700nm)

- Measurement made in mmol/m/s
- Instantaneous



Item 3415F Shown

Rule of Thumb

Warm Season Turf Requires, on Average, 30+ Mols per day

Cool Season Turf Requires, on Average, 15+ Mols per day

Current research is being done to better define optimal light ranges for all turf species.





One of the many 'other' challenges
of a sports turf manager





Thank You!!



Please Welcome Bulldog Field Equipment



Please click the mouse or the arrow key to advance to the next slide and begin the presentation.



Chad & Cathy Kropff

Founders/Owners

Certified SWaM owned business

WHO

Chad



- Sports Turf Professional

Cathy



- Sports Marketing and Management Professional



Combined total of 45 years of sports business experience

Why Bulldog?

- Known to be sturdy, strong, kind, and loyal
- Our beloved Fester was part of our family for 14+ years



Our Mission

- Invent Equipment & Tools to help sports turf managers
- No one focused on sports turf managers and groundkeepers
- First product – adult pitching rubber



WHY the Pitching Rubber



- Problem with twisting & bowing
- Short lifespan & unsafe
- Waste of time and \$\$ to replace

WHEN



Timeline

Oct-Dec 2011

Prototypes
arrive

January 2012

Debuted and
sold pitching
rubber at STMA
Conference

2012

Sold over 320
pitching rubbers.
Also tested and
enhanced the
adult & youth
pitching rubber

Beacon Athletics Testing Results

“Just finished a year long test of the Bulldog Pitching Rubber at our Field Maintenance Research Site in Madison, WI. The site has 3 fields, each of which host over 400 events (games, clinics & practices) per year so they see **over 800 hours of use**. We installed a Bulldog Pitching Rubber in the main mound of the 90' diamond which hosts baseball from ages 13 - 16 yr olds with both metal and rubber spikes used. We packed the bore in the pitcher's block with mound clay during the install process. The results? **Absolutely NO bubbling on the surface of the pitching rubber was observed**. The thicker rubber, in the Bulldog Rubber, with the smaller bore **appears to have answered all of the problems that most present day pitching rubber blocks have**. In the past, the other pitching rubber blocks were easily malformed and bubbled during the course of one season. The quality of the rubber used to make the Bulldog appears to be also of good quality as metal spikes used by the pitchers did mostly minor damage to the front edge of the pitching rubber. “

Paul Zwaska , Technical Sales Support
Beacon Athletics

Comparison of BFE pitching rubber vs others

Others

- Cost \$120
- Last less than half a season
- Can only use 1 side before bowing & twisting
- Increased labor, product, & shipping costs to place during season

BFE

- Cost \$250
- Last 2-3 seasons
- Can use 3-4 sides with NO bowing & twisting
- Reduced labor, product, & shipping costs for the season

The Hardness Issue



- Justin Scott, Milwaukee Brewers
- Clark Cox, University of South Carolina
- Chad Laurie, Buffalo Bisons

Fixing the Hardness Issue



- Testing of different rubber combinations
- Interviews & suggestions from Akron Rubber, APR, Dr. Turner and other rubber experts
- Had 2-4 different prototypes made & tested

Improved in 2013



- Improved product made with a new combination of rubber to enhance the hardness of the pitching rubber
- 40 lbs structure remains the same to prevent bowing & twisting
- Will last even longer

Testimonial #1

Our rubbers, while holding their shape and position extremely well, have likewise experienced some wear, but not to the extent of the pictures you attached. I did a 180 degree flip of the game mound rubber last week just to establish a clean front edge since I was doing some mound work anyway. What our rubbers have shown is a lot of surface, cleat mark indentions, which is more cosmetic than anything else. With the enhanced hardness of your new rubbers, I think your product will continue to flourish. I will be purchasing two more in the off-season (to replace our other bullpen).

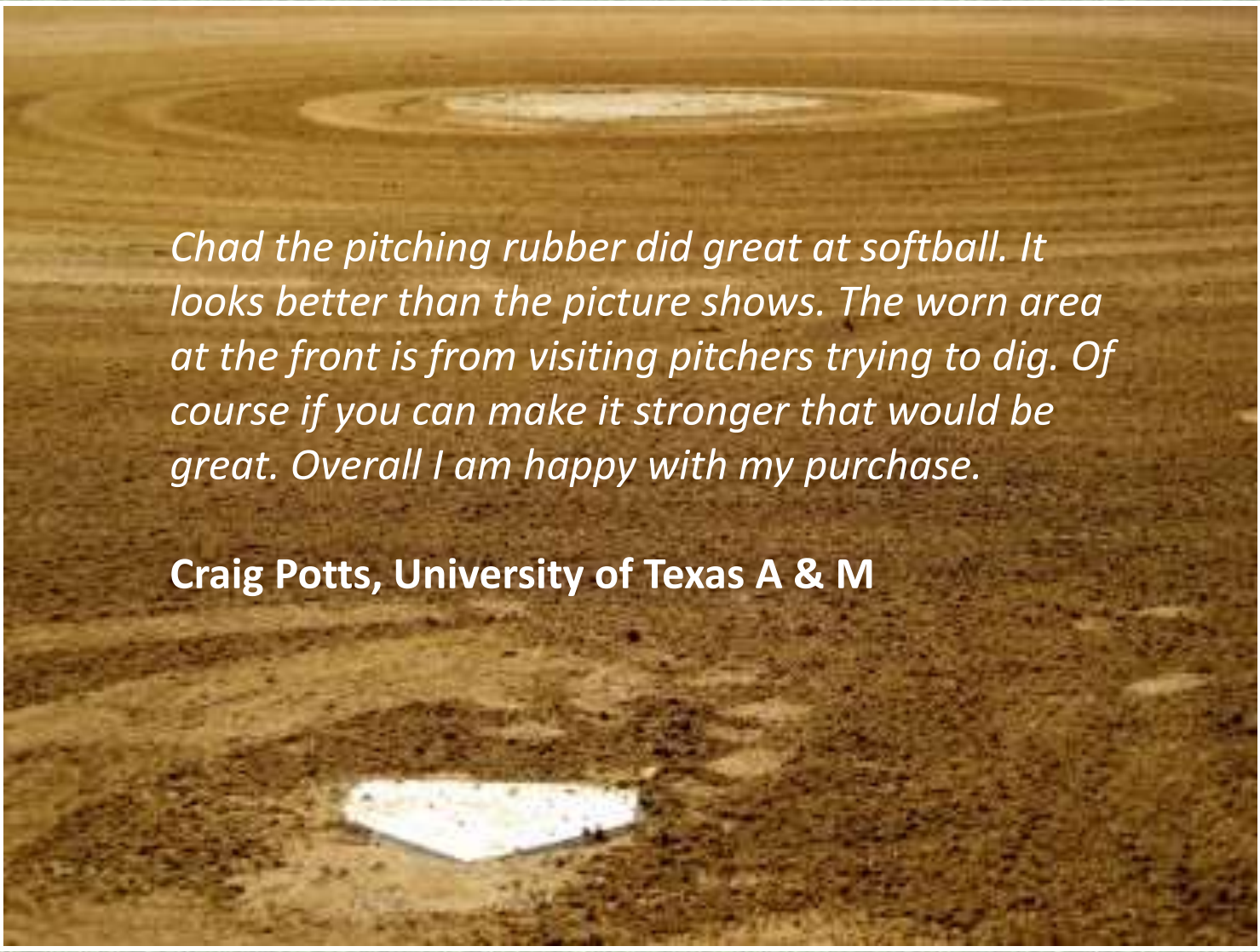
Keith Winter, Fort Wayne TinCaps

Testimonial #2

We are experiencing similar wear but on the back portion of the rubber. It's kind of peeling off like paint would from a wall. We have very slight indentations from spikes, but other than that she's a beast. I'm very happy with it and on Wednesday had some talked with the Greensboro Grasshoppers about your rubber. They are having difficulties with theirs and had to flip it prior to the start of the ACC Tournament. I told them they needed to order 5 of yours!

Scott Strickland, Durham Bulls Baseball Club

Testimonial #3



Chad the pitching rubber did great at softball. It looks better than the picture shows. The worn area at the front is from visiting pitchers trying to dig. Of course if you can make it stronger that would be great. Overall I am happy with my purchase.

Craig Potts, University of Texas A & M

Ugly Dogs

We inspect each pitching rubber and have some rubbers that have some small defects such as a few dimples, discolorations, and/or some edges that are not perfectly square.



Bulldog Field Equipment Pitching Rubbers Around the World



Thank you to our Customers

Arizona Diamondbacks
Athletic Field Design
Atlanta Braves
Blacksburg High School
Bridgewater College
Buffalo Bisons
Carolina Green
Christiansburg Parks & Rec
City of Salem Parks & Rec
Columbus Clippers
Conserv FS
Diamond Pro (TXI)
Dublin Scioto High School
Duke University
Durham Bulls

ESPN Wide World of Sports
Ferrum College
Fort Wayne TinCaps
GCA Services Group, Inc.
Harrisburg Senators
Kansas City Royals
Lancaster Barnstormers
Long Island Ducks
Los Angeles Dodgers
Miami Marlins
Milwaukee Brewers
Myrtle Beach Pelicans
New Hampshire Fisher Cats

Odeys Field Experts
Old Dominion University
Philadelphia Phillies
Radford University
Roanoke City Parks & Rec
San Diego Padres
Scranton Yankees (Railriders)
Sportscape
Staten Island Yankees
Texas A&M
Texas Rangers
TLI Sports, Inc.
USA Baseball
Washington Nationals

Giving Back in 2012



The 1st Annual Salem Red Sox
Challenger Baseball Clinic

FUTURE

- Stop by Booth #1012
- Youth Pitching Rubber
- Double-sided Home Plate
- Twin-Blade Scuffle Hoe
- Bulldog Tamp
- Opportunity to recycle BFE pitching rubbers into souvenir displays

Thank you!





Please Welcome Xtreme Turf Makeover

XtremeTurfTM
MAKEOVER

Please click the mouse or the arrow key to advance to the next slide and begin the presentation.

XtremeTurf™

MAKEOVER



More than

7,000 multi-use synthetic turf sports fields

are in use throughout the USA. As the popularity of synthetic turf continually increases, so does the need for services to protect, clean and rejuvenate the turf.

Most companies get their warranty, file it away and don't follow proper maintenance.

TURF WARRANTY

Typical warranty period is 8 years

Most buyers get their warranty, file it away and don't follow proper maintenance. Without proper maintenance

Your warranty may be VOID!

Most companies get their warranty, file it away and don't follow proper maintenance.

YOUR TURF WARRANTY

Know and maintain your warranty

- Maintenance log
- Maintain infill levels
- Periodic g-max testing



STC Maintenance Guidelines

"Maintenance of an infilled synthetic surface is essential to maintain its appearance and to provide consistency of play, permeability and longevity."

THE IMPORTANCE OF *G*-MAX

G-max represents the shock absorbency on a turf field.

Over time, turf can become hard due to compaction and infill loss, which increases g-max.

Higher g-max = unsafe playing surface

G-MAX COMPARISONS

New Field	95–110
Recommended Performance	Below 165
Unsafe Conditions	175 and above
Probable Field Closure	200 and above

**Source: STC, ASTM, CPSC guidelines*

WHAT'S YOUR FIELD CONDITION?

As a turf field ages, safety, quality and performance levels decline.

Does your field show these problems?

- Premature aging
- Uneven surface
- Broken fiber
- Poor shock absorption
- Loss of infill
- Reduced traction
- Drainage issues
- Hardened surface

THE XTM SOLUTION

Warranty length does **NOT** indicate the life of your field!

Bring your field back to life with

XtremeTurfTM
MAKEOVER

FIRST STEP IS DIAGNOSTICS

We check for

- Matting of fibers
- Infill levels and uneven surfaces
- Inspect base, curbs, drainage
- Premature wear, torn turf and seams
- Dangerous conditions
- G-max levels



PROTECT YOUR FIELD!

Level 1

Decompaction, deep cleaning, conditioning, repair

Level 2

*Xtreme Clean**- includes infill extraction, separation, cleaning, and reinsertion

Level 3

Xtreme Clean service, removal and repurposing of old turf, and site inspection

*** Xtreme Clean is a patent pending rubber infill cleaning process**

Level 2



Infill **BEFORE**



Infill **AFTER**

Xtreme Clean™ : Exclusive patent pending infill cleaning process!

1. Remove existing infill.
2. Cleaning machine separates and removes all dust, debris, sand and yarn
3. Infill is returned to field in "like new" condition
4. Additional infill added as needed.

Level 3

Xtreme Clean™ & turf removal

If a field is determined to be at the end of its life, we can extract and clean the existing infill, and remove the old turf.

The extracted turf is repurposed or recycled—nothing is taken to the landfill

The site is left clean and ready for new synthetic turf



G-max testing before and after all services.

We are the only company offering these levels of service and diagnostic testing!

ENVIRONMENTALLY FRIENDLY

We are committed to producing minimal waste and maintaining sustainable practices.

NOTHING is taken to a landfill!

Level 2

Infill is cleaned, recycled and reused on-site.

Level 3

Old turf is removed and repurposed for alternate uses.

** Eliminates expensive hauling and disposal fees for the owner*

XTREME TURF MAKEOVER RESULTS

- **Bring your field back to life**
- **Lower g-max levels to improve safety**
- **Improve playing surface**
- **Better filtration**
- **Infill as clean as new with Xtreme Clean**
- **Visually improved appearance, and more**
- **Nothing goes to a landfill**

CASE STUDY : PITTSBURG STATE

Level 1 and **Level 3**
services performed on existing turf field.



CASE STUDY : PITTSBURG STATE

Level 1

- Decompaction to demonstrate g-max reduction by over 25 points
- XTM lowered g-max more than traditional grooming methods



CASE STUDY : PITTSBURG STATE

Level 3

- Xtreme Clean
- Extracted infill, cleaned and separated sand, rubber and debris
- Cleaned infill staged on sidelines ready for reuse in new field
- Turf removal

PROTECT YOUR INVESTMENT



**Protect your athletes and gain
more years from your field with**

XtremeTurfTM
MAKEOVER

XtremeTurf™

MAKEOVER



Thank you for your time.

Contact: Kevin Chessher

KevinC@XtremeTurfMakeover.com

281.989.5550



Please Welcome Wiedenmann North America



Please click the mouse or the arrow key to advance
to the next slide and begin the presentation.



Wiedemann®

2013

Leading by Example

The new ground driven Terra Clean M (for sweeping artificial turf)



The same basic concept as the Terra Clean 120 and the Terra Clean 160



More Affordable



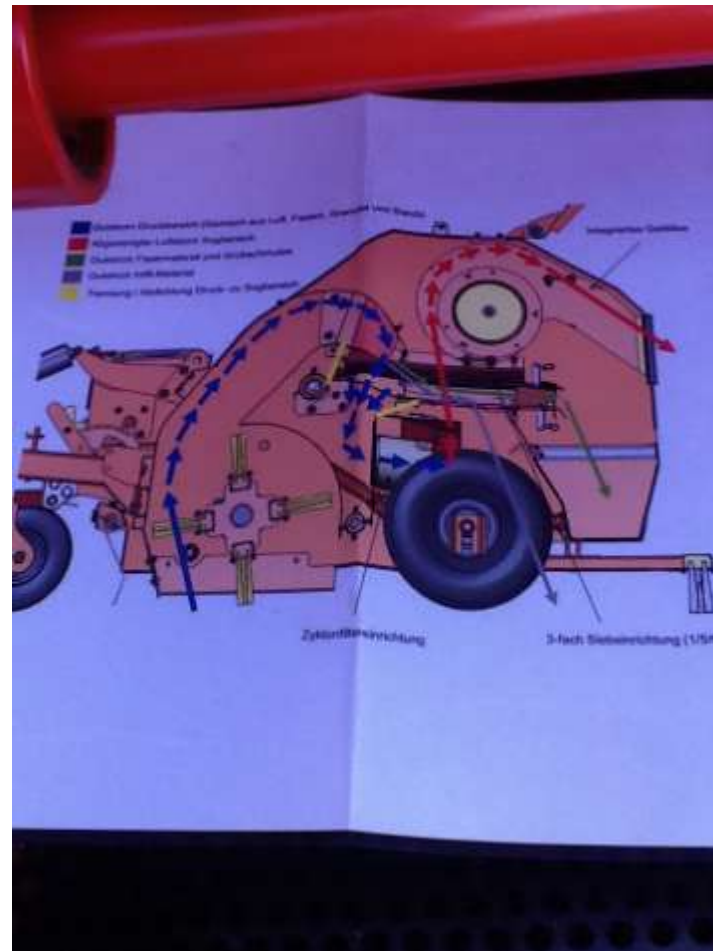
Similar Results

(Separates and Re-Distributes the Crumb Rubber while Collecting the Debris)



The new Terra Clean 160 M

Separates, Filters and Re-Distributes the Crumb Rubber while Collecting any Debris



63" Working Width

(Approx. 2 hrs. to Clean a Field)



Additional Dust Filtering System



The new Core Recycler



Separates the Sand from the Thatch and Redistributes the Sand while Collecting the Thatch



Collects the Thatch



The Thatch is Collected and the Sand is
on the Turf



Rotating Screens to Separate the Sand from the Thatch



Inserts for Core Collecting



Super 600

5.9 Cubic Yard Capacity

(Sweeps, Collects, Verticuts, Flail Mows, Pulverizes)



Unbelievable Results



Dumps to a height of 83”



Mega Twister

14,500 CFM

Chute Rotates 270 Degrees

Quiet



Super 120M

2.1 Cubic yard capacity



Thank You

www.wiedenmannusa.com



Please Welcome Performance Nutrition



Please click the mouse or the arrow key to advance to the next slide and begin the presentation.



Patented Eco-Fertilizer

from CK Life Sciences



NutriSmart[®]-B

Starch	8-9%
Lignite/Leonardite	89-90%
6 strains of yeast	1%



NutriSmart® converts the resources found in the soil and atmosphere into available plant nutrients.



Prolonged use of NutriSmart will restore soil balance; it will improve soil's physical and chemical properties.



- **Granular Eco-Fertilizer**
- **Can replace 25 - 50% of soil applied fertilizers**
- **Fixes N from atmosphere**
- **Mobilizes P in soil**
- **Un-locks K tied up in the soil**
- **Works for up to 5 months**
- **Nourishes soil microbes**



A Pro-Active Approach to Tomorrow's Challenges



- A solution for improving soil quality;
- A technology to improve the nutrient use efficiency (NUE) of chemical fertilizers;
- A partner for organic settings
- An ideal program to implement future fertility practices

IPNS (Integrated Plant Nutrient System)

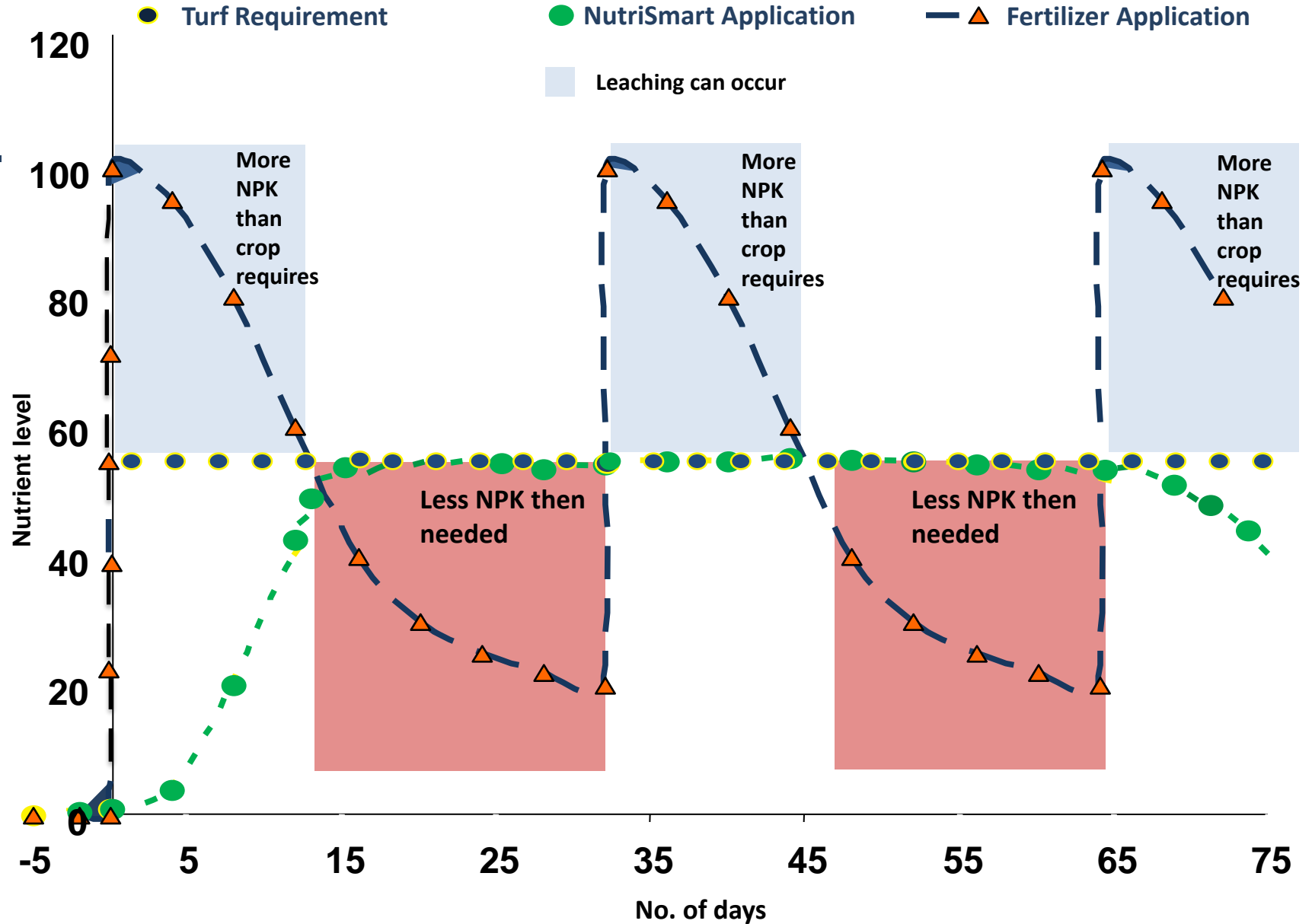
BMP (Best Management Practices)



- Improves Soil Structure
- **Delivers high quality organic matter**
- Improves water-holding capacity
- **Improves nutrient uptake**
- Helps increase soil oxygen content
- **Improves exchange of gases**

NutriSmart • Non-Leaching, NPK-Free Nutrition on Demand

Get Off the Roller Coaster!





Cypress Ridge GC, San Luis Obispo
Rye Grass

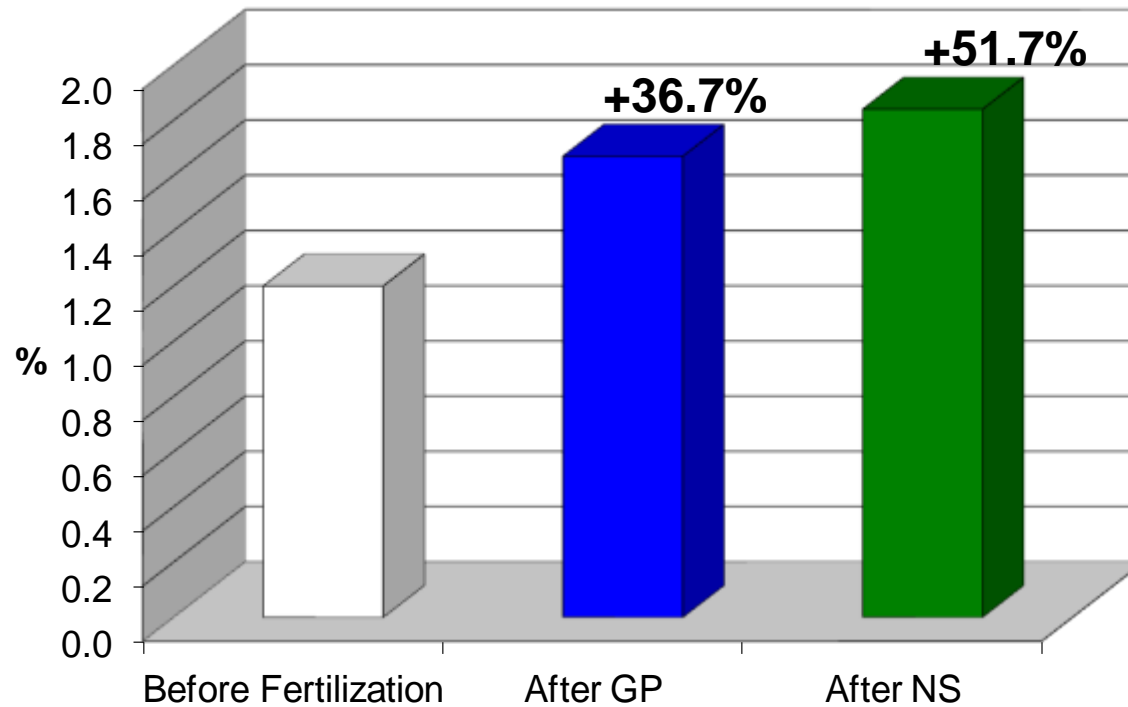
Treatments

1. Grower Practice (GP) - 215 lb/A of 20-3-20 + 6% Fe applied June 30, 2001
2. NutriSmart (NS) - 350 lb/A applied July 31, 2001



Cypress Ridge GC, San Luis Obispo – Rye Grass

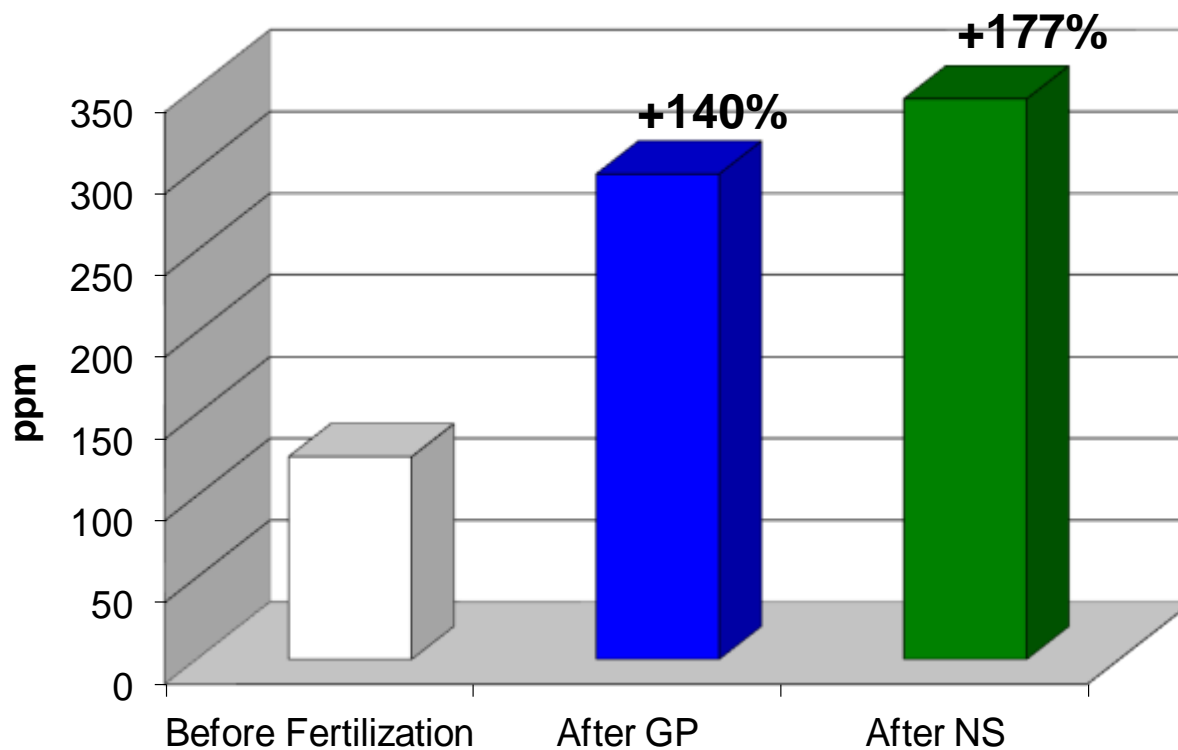
Soil Organic Matter Content





Cypress Ridge GC, San Luis Obispo – Rye Grass

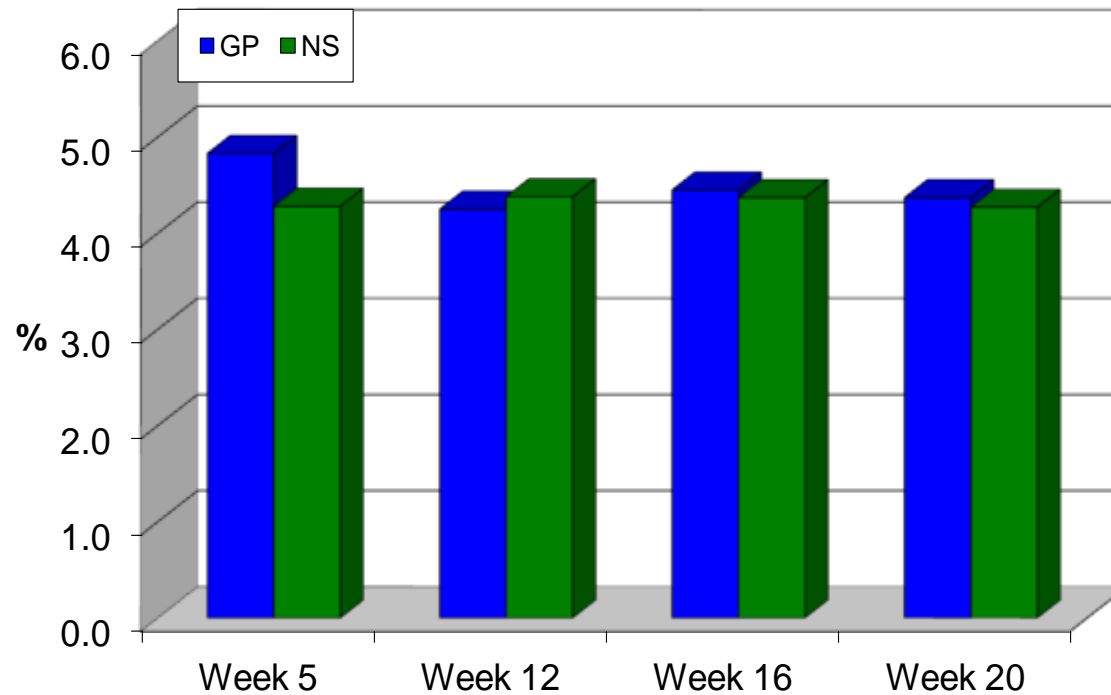
Soil Potassium Content





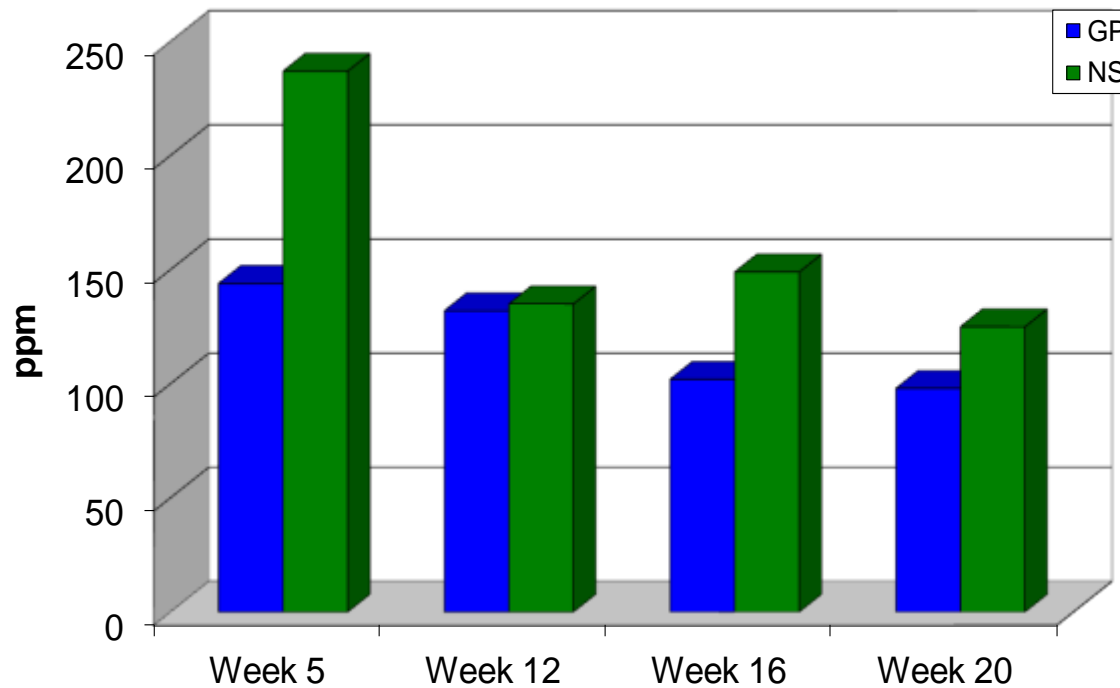
Cypress Ridge GC, San Luis Obispo – Rye Grass

Tissue Nitrogen Content of Ryegrass



Cypress Ridge GC, San Luis Obispo – Rye Grass

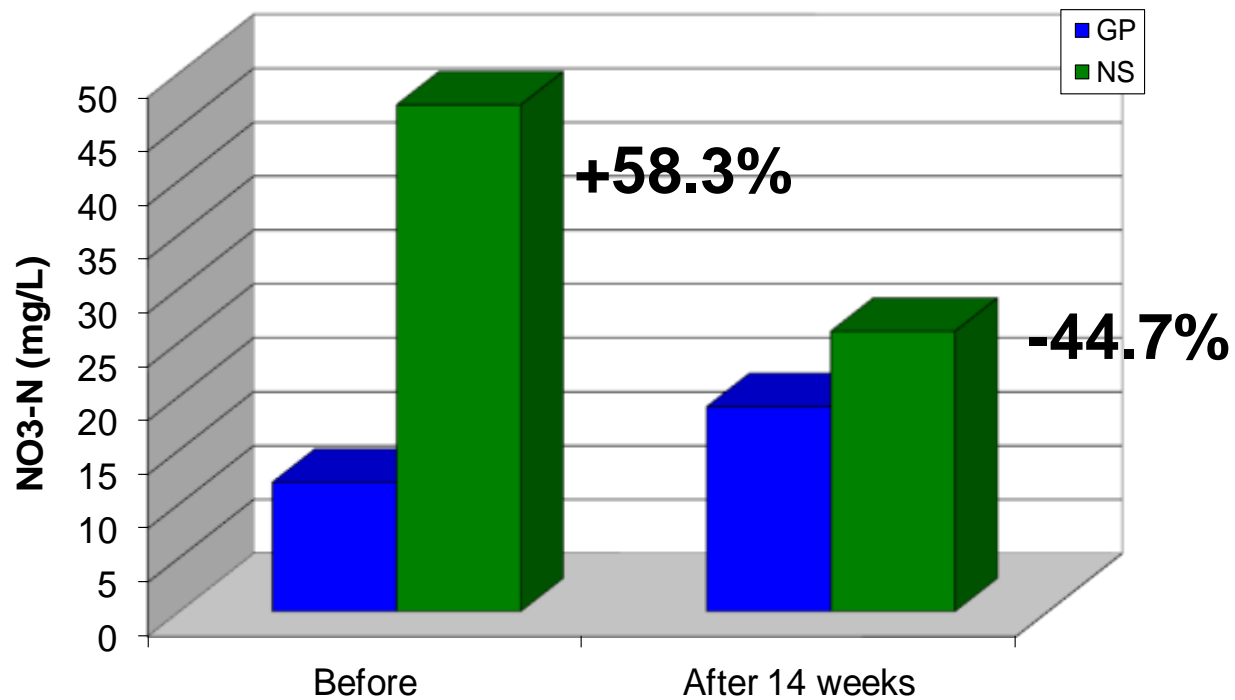
Tissue Iron Content of Ryegrass





Cypress Ridge GC, San Luis Obispo – Rye Grass

Groundwater Nitrate Content





Cypress Ridge GC, San Luis Obispo – Rye Grass

Conclusions

- Organic matter, soil phosphorus and potassium levels increased after NS application.
- Tissue iron levels were higher in the NS plots throughout the 4 month experimental period.
- Tissue nitrogen levels remained equivalent to the standard practice.
- Ground water nitrate levels near the NS plots dropped, whereas levels near the GP plots increased during the 3 month study.
- Superintendent's observation was that the NS plots were more uniform and dense than the GP plots.



Blending of NutriSmart with Chemical fertilizers



NS:NPK - approx. 60:40

* CF = 20:10:0



Benefits of NS:NPK Blends – To Crop

- Improves & sustains plant growth and yield
- Improves crop quality
- Provides long efficacy
- Healthier plants - improved of root system development



Benefits of NS:NPK Blends – To the Ecosystem

- Reduces the use of chemical fertilizer
- Natural & Environmentally Friendly
- Much less pollution caused by the leaching of excess nitrogen
- Improves soil quality
 - increases the soil organic matter
 - improves soil environment for beneficial microorganisms



Benefits to NPK:NS Blender

- Increase N, P, & K nutrients use efficiency
- Enable product differentiation
- Meet UN/FAO recommended agricultural system e.g. IPNS & balanced fertilization
- Stable supply
- Ease of blending
- Enable environmentally-friendly claims
- Better image and corporate citizenship



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Superior Blends for Sports Turf

Dr. Leah A. Brilman
Director of Research and Technical Services

Why Blends and Mixtures?

- No single variety is perfect
- Balance strengths and weaknesses
- Blends can be tailored for individual sites
- Mixtures (2 or more species) can increase diversity

Futura Sport

Bluegrass Based Blend

3 to 4 Divergent Bluegrasses

Bluegrass Based Mixture

Add in 2 Perennial ryegrasses



Selecting Kentucky Bluegrass

- Excellent wear tolerance or shear strength
- High performance overall or in your area
- Excellent disease resistance (complementary)
- Can compare across multiple NTEPS
- Shade tolerance, fall and spring growth

Selecting Kentucky Bluegrass

- Aggressive-type
- Midnight-type
- America-type
- Mid-Atlantic-type or Texas Hybrid

Selecting Kentucky Bluegrass

Midnight-type

- Blue Velvet - Wear tolerance, NJ, Sod strength, drought tolerant, turf quality
- Granite - Wear tolerance, drought tolerant, turf quality
- Quantum Leap - Sod strength, wear tolerant, turf quality, drought tolerant

Selecting Kentucky Bluegrass

America-type

- America - spring and fall growth, drought tolerant, shade tolerant, wear tolerant
- Mercury - superior shear strength, shade tolerant, drought tolerant, early spring green-up
- Armada - Salinity tolerant, drought tolerant, shade tolerant, excellent rhizomes
- Langara - Shade tolerant, wear tolerant, drought tolerant, reduced water use, fall and spring growth

Selecting Kentucky Bluegrass

Texas hybrid

- Bandera - Excellent rhizomes, heat tolerant, drought tolerant, salinity tolerant (perform like Mid-Atlantic)

Aggressive-type

- Touchdown - Industry standard for sod strength, wear tolerance. Long term performance

Perennial Ryegrass – Advantages in Mixtures

- Quick establishment
- Very dark green color
- Moderately high salt tolerance
- Resistant to different diseases than Kentucky bluegrass or tall fescue
- Endophyte-enhanced, helps with crown and leaf feeding insects
- Primary emphasis – Gray Leaf spot resistance, stress tolerance, dark green color, Crown Rust resistance

Gray Leaf Spot Resistance

2004 NTEP National Perennial Ryegrass Trial Gray Leaf Spot Ratings - Mean of 2
Locations - 2005 Data Disease Rating: 1-9; 9=No Disease

Variety	Mean	Variety	Mean
Fiesta 4	9.0	Gray Star	6.7
Dasher 3	8.8	Silver Dollar	6.5
SR 4600	8.8	Pizzazz	5.5
Derby Xtreme	8.3	Palmer III	5.3
Manhattan 5 GLR	8.3	Affinity	5.2
Charismatic II GLSR	8.2	Pianist	5.2
Palmer IV	8.0	Brightstar SLT	4.7
Regal 5	7.8	Pinnacle	3.3
Revenge GLX	7.7		
Hawkeye 2	7.5	LSD Value	1.1
Zoom	7.2		





Perennial Ryegrass

2004 NTEP National Perennial Ryegrass Trial –
Turf Quality with Traffic Starting Fall, 2005 at Puyallup, WA. 2006 Data
Quality: 1–9; 9=Best

<i>Variety</i>	<i>Mean</i>	<i>Variety</i>	<i>Mean</i>	<i>Variety</i>	<i>Mean</i>
Derby Xtreme	5.7	Paragon GLR	5.0	Palmer III	4.3
Zoom	5.6	Dasher 3	5.0	Affinity	4.4
All*Star 3	5.6	Brightstar SLT	4.9	Linn	3.5
Palmer	5.5	Cabo II	4.8	<i>LSD Value</i>	<i>0.8</i>
SR 4600	5.4	LaQuinta	4.8		
Fiesta 4	5.4	Manhattan 5 GLR	4.6		
PIZZAZZ	5.1	Pentium	4.6		

Variety	Number of rhizome/ unit area (6"X6")	Number of branched rhizome/unit area
Blazer 4	376 a	52 a
Fiesta 4	340 ab	38 ab
SR 4600	306 bc	38 ab
PM 103	294 cd	30 bc
NightSky	282 cde	31 bc
05EPR	263 de	46 ab
PM102	244 def	12 cde
Dasher 3	210 fg	13 cde
Zoom	194 g	19 cde
Calypso 3	184 g	28 bcd
Pick SD	184 g	10 de
Brightstar SLT	178g	19 cde
Palmer 3	165g	5e
Premier	123h	14 cde

Perennial Ryegrass Newest Advances

- Wicked (4RHD) - highest rated cultivar in New NTEP. High Gray Leaf Spot Resistance. Excellent wear tolerance.
- Karma (10401) - Excellent wear tolerance. Spreading type growth. Winter active growth. Excellent Gray Leaf Spot Resistance.

Perennial Ryegrass - 2011 GLS Rutgers Results

SR 4650	1	8.3
Karma	3	8.2
Sideways	4	8.0
PRX-4GM-1	24	6.7
PSRX 4CAGL	31	6.2
Fiesta 4	38	5.5
Wicked	41	5.2
SRX-4MSH	54	4.2
Pick 4DFHM	56	3.7
Mach 1	78	2.2

Ryegrass for Repairs

Repair Options

- High seeding rates of perennial ryegrass

Transitional Ryegrass

- Intermediate ryegrass - germinate under colder soil temperatures than perennial
- Transist 2600

Ryegrass for Repairs

Repair Options

Turf-type Annual Ryegrass

- Excellent Nurse Grass
- Quick repairs
- TXR



THE END



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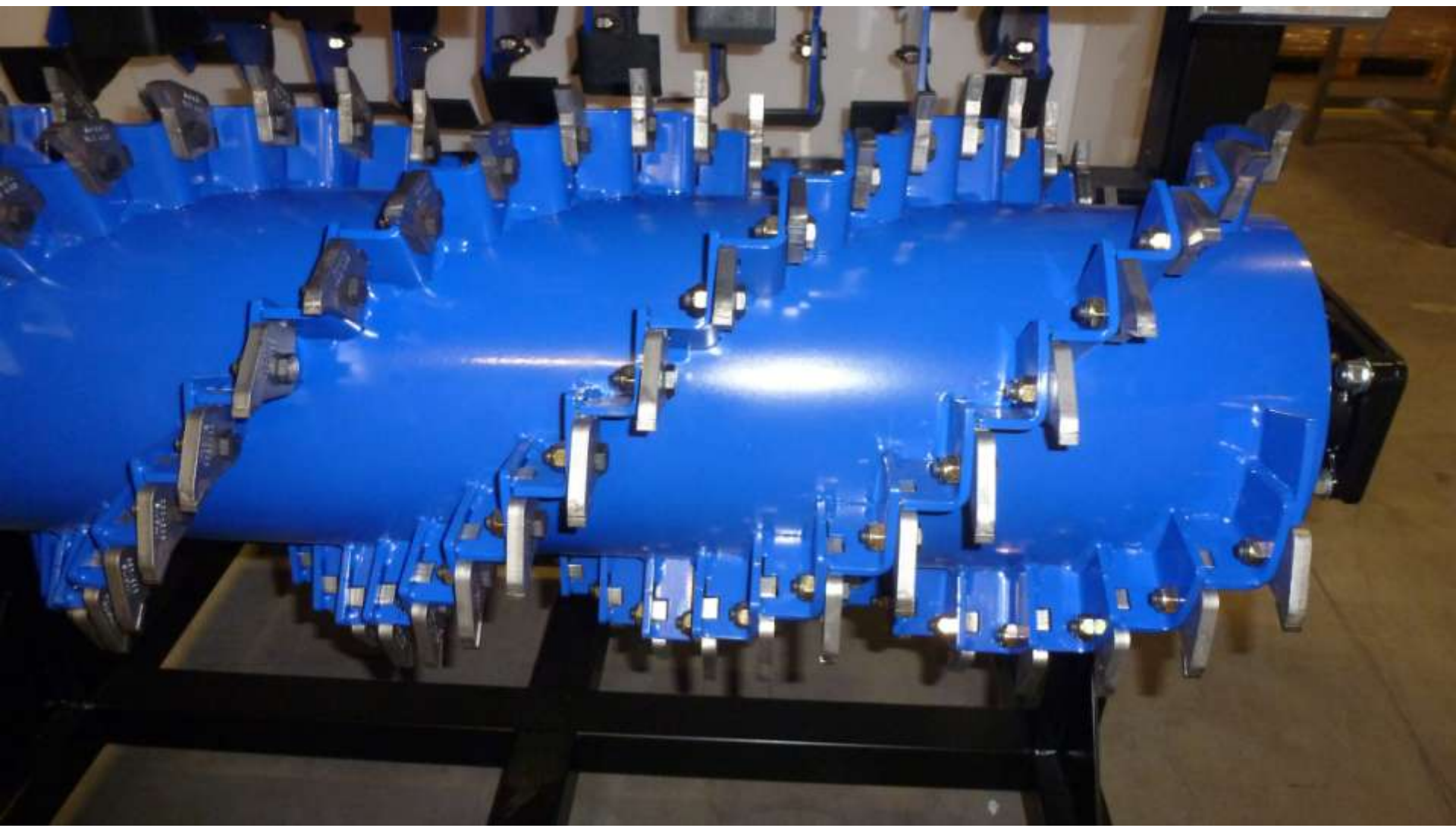












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