NOT YOUR FATHER'S
~~OLDSMO…~~
NITROGEN

Photo: Anton Imbro from Pexels

THE POWER TO MAKE THINGS GROW

KOCH TURF & ORNAMENTAL

Tools for Making Fertilization More Efficient, Effective, and Profitable

Eric Miltner, Ph.D., CCA, 4R NMS Agronomist
eric.miltner@kochind.com

Koch Turf & Ornamental – Value Chain

Manufacturer
(nutrients, EEFs, active ingredients)

Formulator / Blender
(creates and bags finished products)

Distributor
(sells finished product to end users)

End User

Product Portfolio

Enhanced Efficiency Fertilizers

Controlled Release Fertilizers	Slow Release Fertilizers	Stabilized Nitrogen
POLYON® Controlled-Release Fertilizer	Nitroform® Slow-Release Fertilizer	UMAXX® STABILIZED NITROGEN
DurationCR. Controlled-Release Fertilizer	Nutralene® Slow-Release Fertilizer	UFLEXX® STABILIZED NITROGEN
	XCU® Slow-Release Fertilizer	HYDREXX® PROFESSIONAL NITROGEN STABILIZER
	NITAMIN® TARGETED FOLIAR NITROGEN	

Photo: Anton Imbro from Pexels

Photo: Juhasz Imre from Pexels

Photo courtesy of TruGreen

Urea

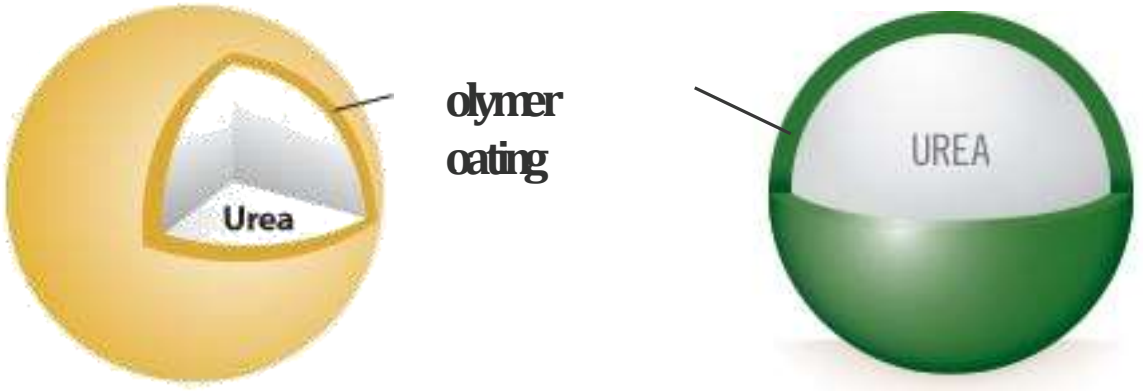
PCSCU
(XCU®)

Sulfur Coated Urea

https://www.bing.com/images/search?view=detailV2&ccid=yVJKEquR&id=4E022E890599709D2B195C0BC7171F7E8E74B793&thid=OIP.yVJKEquRoU4NrX_bhayShwHaHa&mediaurl=https%3a%2f%2fi.pinimg.com%2foriginals%2faf%2f73%2fd1%2faf73d13da42ece21c03ad3ec472fb030.jpg&exph=709&expw=709&q=photos+of+sulfur+coated+urea&simid=607987443140331557&selectedIndex=17&qpvt=photos+of+sulfur+coated+urea&ajaxhist=0

Controlled Release Fertilizers
Polymer Coated Urea (PCU)

- Fertilizer granule is coated with a homogeneous layer of polymer.
- Polymer is highly resistant to damage, retaining its controlled-release character after handling.

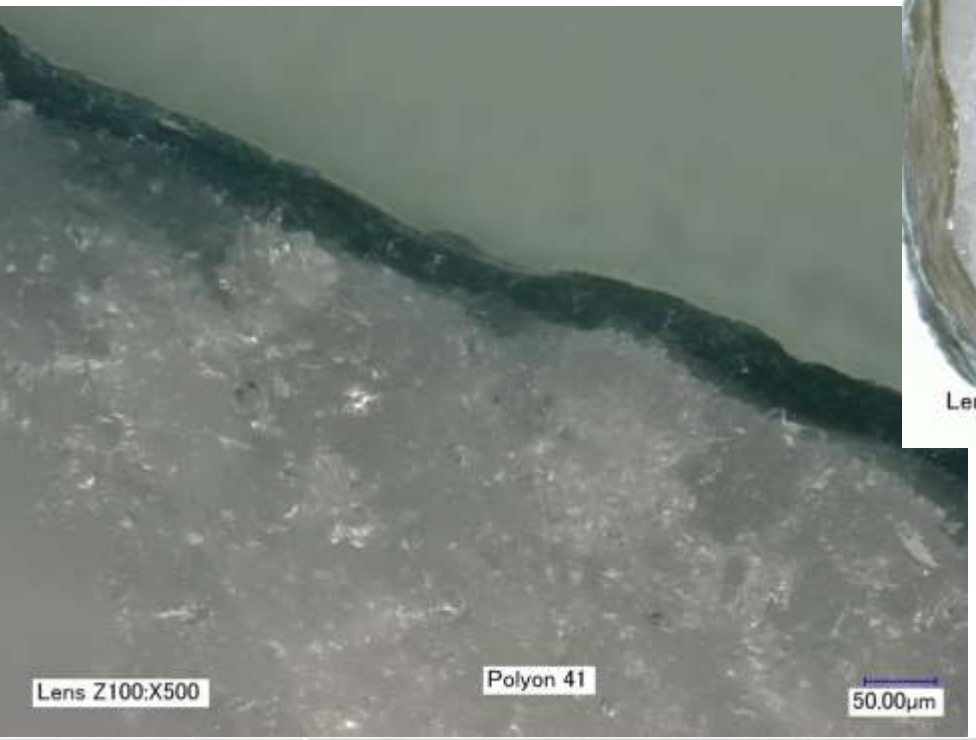


DurationCR Controlled-Release Fertilizer

POLYON Controlled-Release Fertilizer

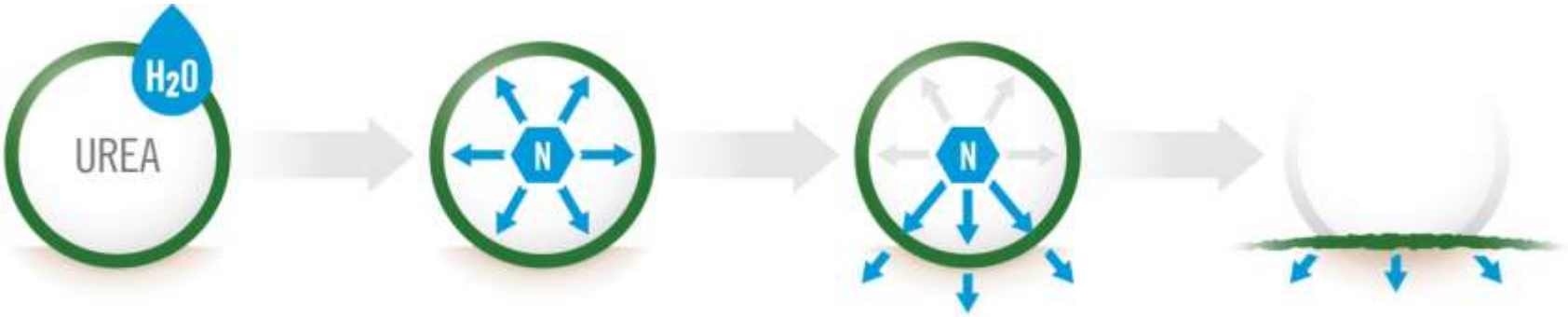
Controlled Release Fertilizers
Polymer Coated Urea (PCU)

POLYON
Controlled-Release Fertilizer



DurationCR
Controlled-Release Fertilizer

POLYON® and DURATION CR® Fertilizers – Temperature-controlled Diffusion



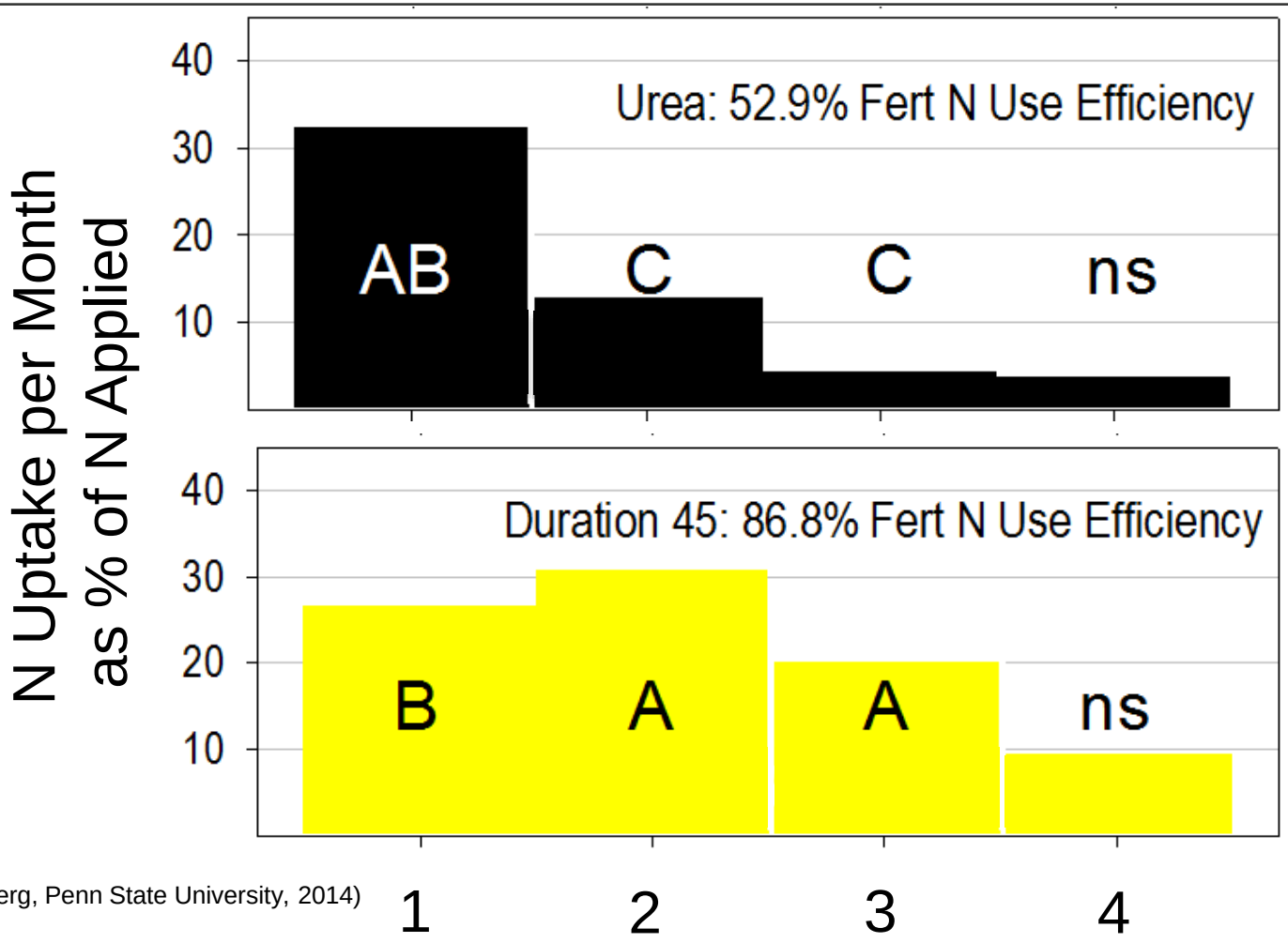
Within a week of application, soil moisture penetrates the polymer coating through osmosis.

Encapsulated nutrients are dissolved, but not released.

Over time the dissolved nutrients slowly release through diffusion, in response to temperature and coating thickness.

After the complete release of nutrients, the polymer coating eventually decomposes by microbial activity into naturally occurring elements.

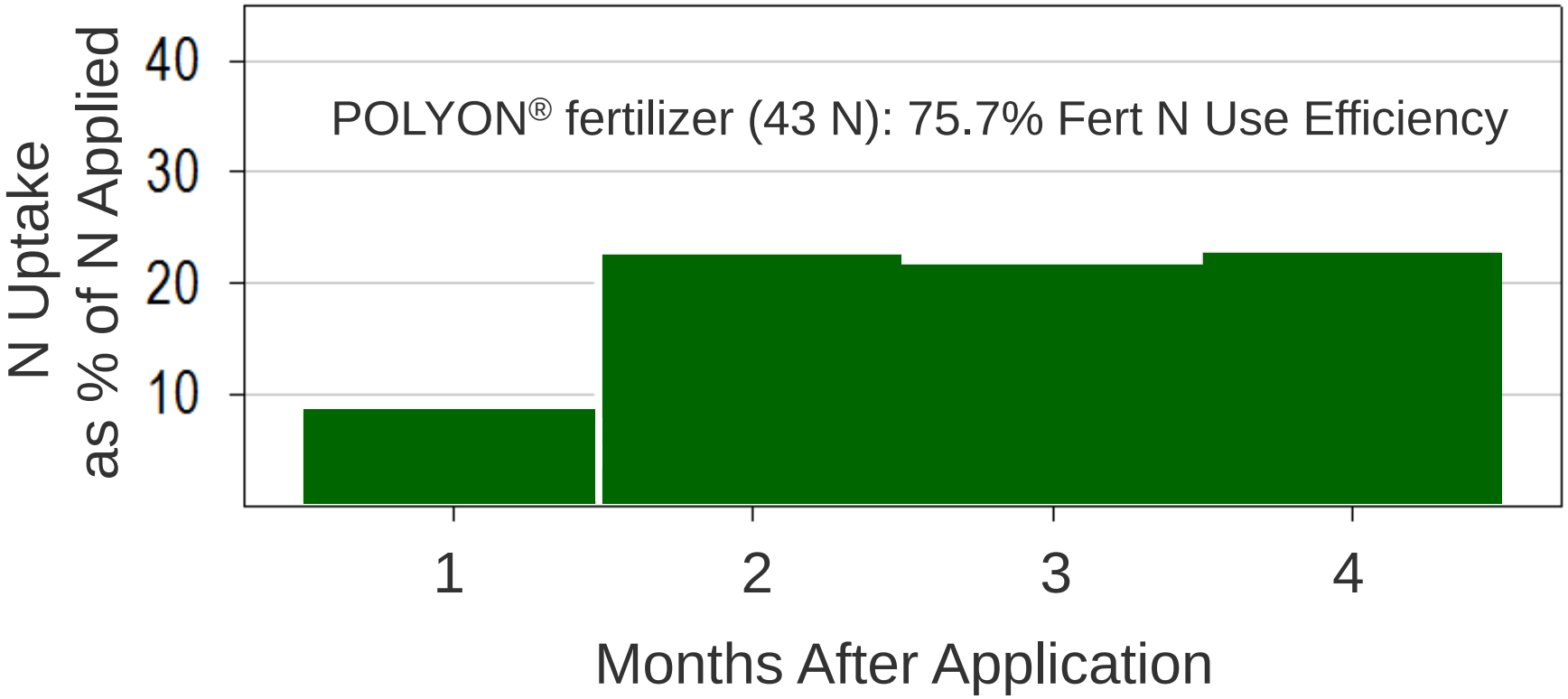
Monthly Nitrogen Uptake, DURATION CR® 45 and Urea



(Dr. Max Schlossberg, Penn State University, 2014)

The underlying data was provided by Pennsylvania State University under a Research Trial Financial Support Agreement with Koch Agronomic Services, LLC and neither Pennsylvania State University nor the individual researchers referenced endorse or recommend any product or service.

EEF – Increased Plant N Uptake



Dr. Max Schlossberg, Pennsylvania State University, 2015

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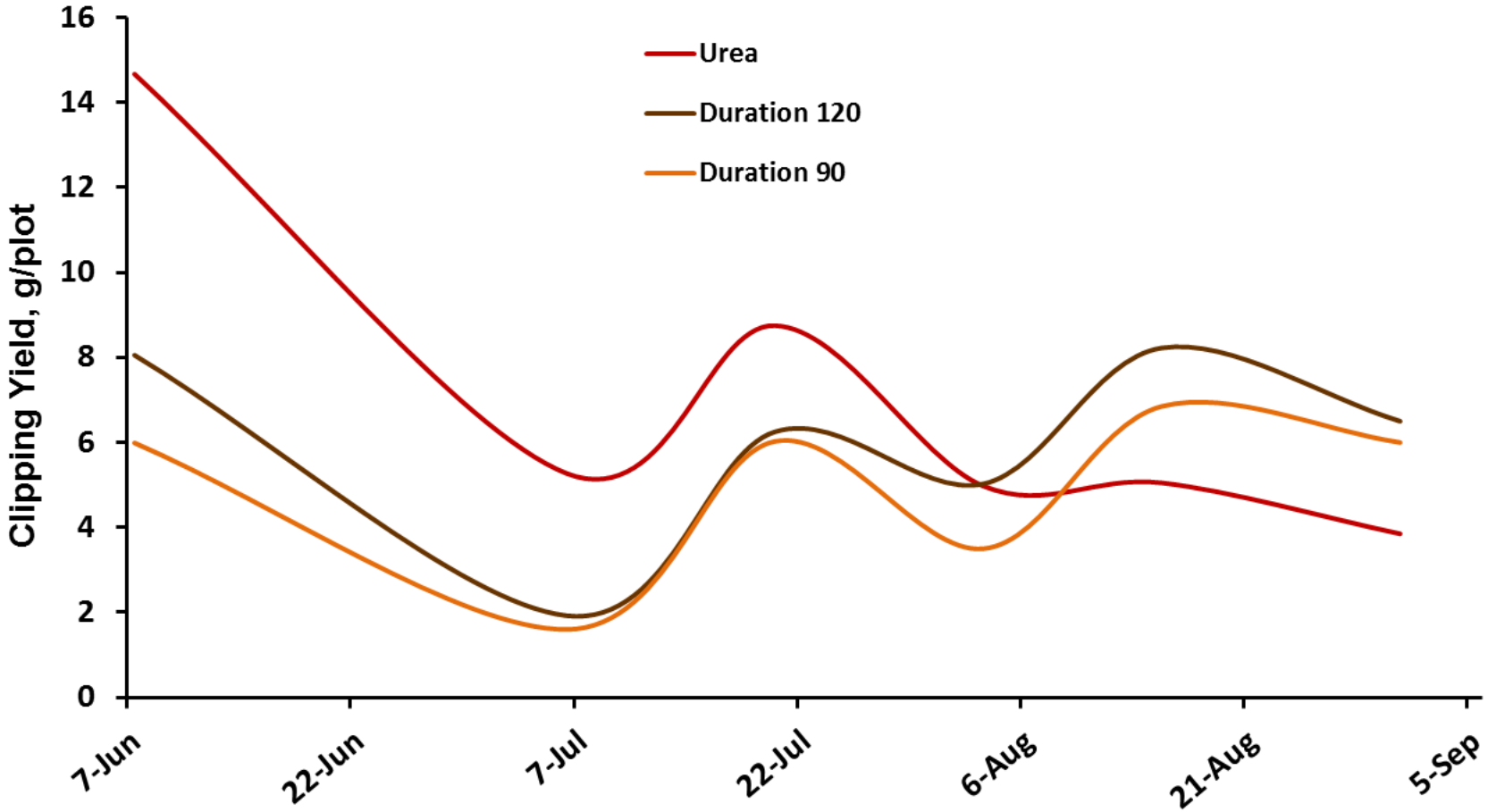
Kentucky bluegrass, Clipping Yield



(Dr. Doug Soldat, University of Wisconsin, 2012)

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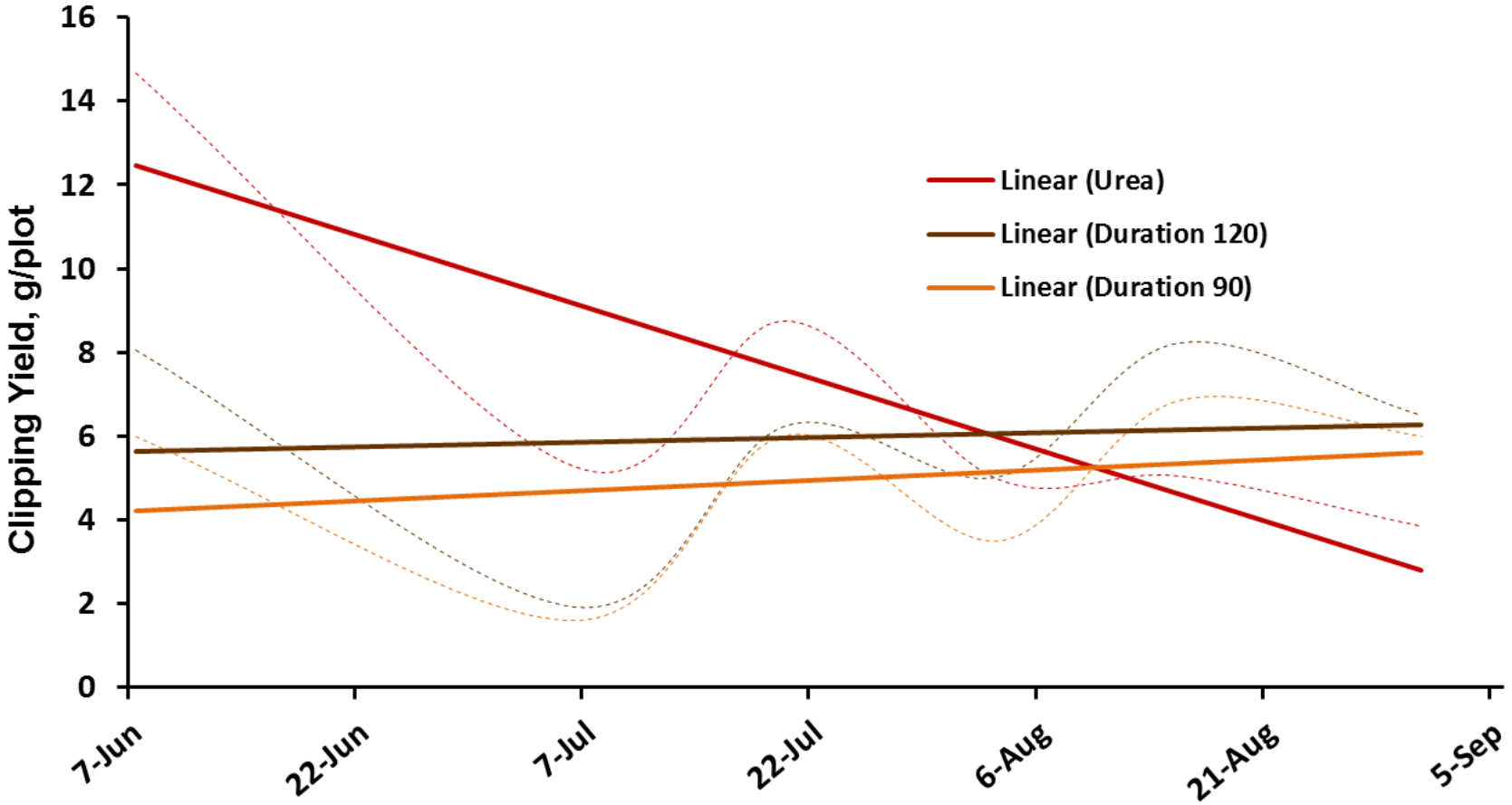
Kentucky bluegrass, Clipping Yield



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Saving Time and Money, and Increasing Productivity with EEFs

5-Application Lawn Care Program
Urea/PCSCU blend; Six-week intervals

- **Round 1 – Fert + Pre-emergent**
- **Round 2 – Fert + Broadleaf**
- **Round 3 – Fert (+ Insecticide, if needed)**
- **Round 4 – Fert + Broadleaf**

Saving Time and Money, and Increasing Productivity with EEFs

Alternative 5-Application Program
3-month CRN (PCU) blend

- Round 1 – Fert (CRN) + Pre-emergent
- Round 2 – Broadleaf only
- Round 3 – Fert (CRN) (+ Insecticide, if needed)
- Round 4 – Broadleaf only

Saving Time and Money, and Increasing Productivity with EEFs

How did it work?

- Lower fertilizer rate (~30%) and cost (~20%) (apply less N because it's more efficient)
- Better broadleaf weed control
- Fewer call-backs
- 20% more lawns covered in Rounds 2 and 4
- Less time cleaning up hardscapes

Fewer Applications – Efficiencies Gained

- Reduced cost per day of green
- Less time spreading – labor allocation
- Lower total fertilizer use/cost
- Save on freight (delivery)
- Lower fuel use (tractor, utility vehicles)
- Less handling (reduce injury risk, morale)
- Fewer bags for disposal
- Less wear & tear, equip. maintenance

DurationCR
Controlled-Release Fertilizer

POLYON
Controlled-Release Fertilizer

Photo: Juhasz Imre from Pexels

Kochturf.com

Thank You

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