From:	Bill Rooney
To:	"John Mullet"; "Stelly_David Stelly"; "Adam Helms"; "Bob Avant"; "Steve Searcy"; "Bill McCutchen"
Subject:	RE: Draft DARPA STO slides
Date:	Tuesday, October 13, 2009 5:19:00 PM
Attachments:	DARPA_STO slides_081209jm ds wlr.ppt

John:

I've merged some of the comments from David with a few of my own. I didn't put any milestones on goal 2 (leaving that for you).

Regards,

Bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
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College Station, Texas 77843-2474
979 845 2151

-----Original Message-----
From: John Mullet [mailto:jmullet@tamu.edu]
Sent: Monday, October 12, 2009 11:43 AM
To: Bill Rooney; Stelly_David Stelly; Adam Helms; Bob Avant; Steve Searcy; Bill McCutchen
Subject: Draft DARPA STO slides

All,

I have drafted a template for us to use to create the DARPA STO slides. Recall that these will be used by Doug Kirkpatrick when he presents this project to the STO committee. Clearly we will need Dr. Giroir's input once we have a good draft ready.

Please look over this draft.
- modify slides pertaining to your Goal and send modifications to Adam so he can create an updated version for review
- add in 1-3 key milestones/time point for each Goal (currently blank spaces).
- I will work on Goal 2 milestones

David, I did not have a final version of the WH slide (slide 12 in the attached I think). I would suggest changing letter colors where they are difficult to see (orange on orange for example).

Thanks,

John

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High Biomass Energy Crops for U.S. Energy Security

VISIONS for BIOFUEL PRODUCTION:

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"Energy Sorghum" Hybrids:

- Available NOW
- Non-GMO
- Seed-based high-yielding
- Lignocellulosic- and/or sugar-based

"SorCanes":

- 2 suites of new crops, created by novel "wide hybridization" technology (non-GMO):

1. Clone-based (cane) planting / near-term
2. Seed-based planting / mid-term

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PROJECT GOALS:

1. **Optimize production of *existing* energy sorghum hybrids in locations of national security importance.**

2. **Produce next generation energy sorghum hybrids with higher biomass yield and improved composition for biofuels production.**

3. **Create new energy crops using novel wide-hybridization technology that enables sorghum to be crossed to cane and other energy grasses.**

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GOAL 1: **Optimize production of energy sorghum hybrids in locations of national security importance.**

Deliverable: Energy sorghum hybrid production and economic assessment in three locations of national security importance using optimized crop management practices and harvest logistics.

Metric: 10-15 dry tons of lignocellulosic biomass produced per acre per year delivered to biorefineries at ~$60/dT providing ~75% GHG offset for biofuels or ~95% for biopower

Energy Sorghum (2008)

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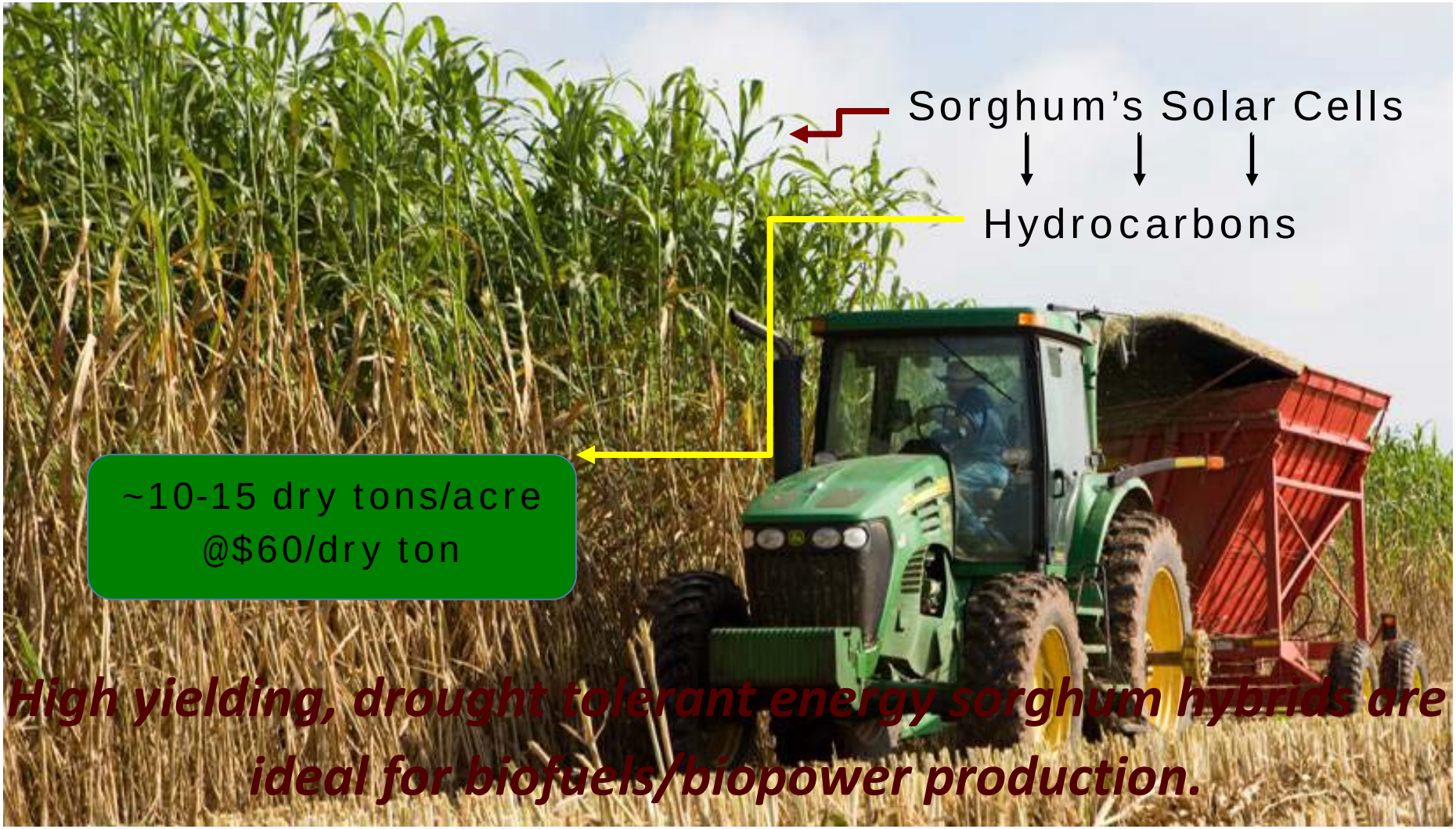

High yielding, drought tolerant energy sorghum hybrids are ideal for biofuels/biopower production.

Level

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GOAL 1: **Optimize production of energy sorghum hybrids in locations of national security importance.**

Milestones:

18 months: Identification of optimum hybrids for important production regions

36 months: Compilation of best management practices

54 months: Assessment of harvest and preprocessing approaches for biomass delivery; economic production assessment.

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GOAL 2: **Produce next generation energy sorghum hybrids with higher biomass yield and improved composition for biofuels production.**

Deliverable: Energy sorghum hybrids with increased biomass yield and improved composition designed using an integrated genomics-to-breeding technology platform.

Metric: Energy sorghum hybrids yielding 15-20 dT/acre under good conditions with improved biomass composition that increases the yield of biofuels per dry ton.

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GOAL 2: Produce next generation energy sorghum hybrids with higher biomass yield and improved composition for biofuels production.

Milestones:

18 months:

36 months:

54 months:

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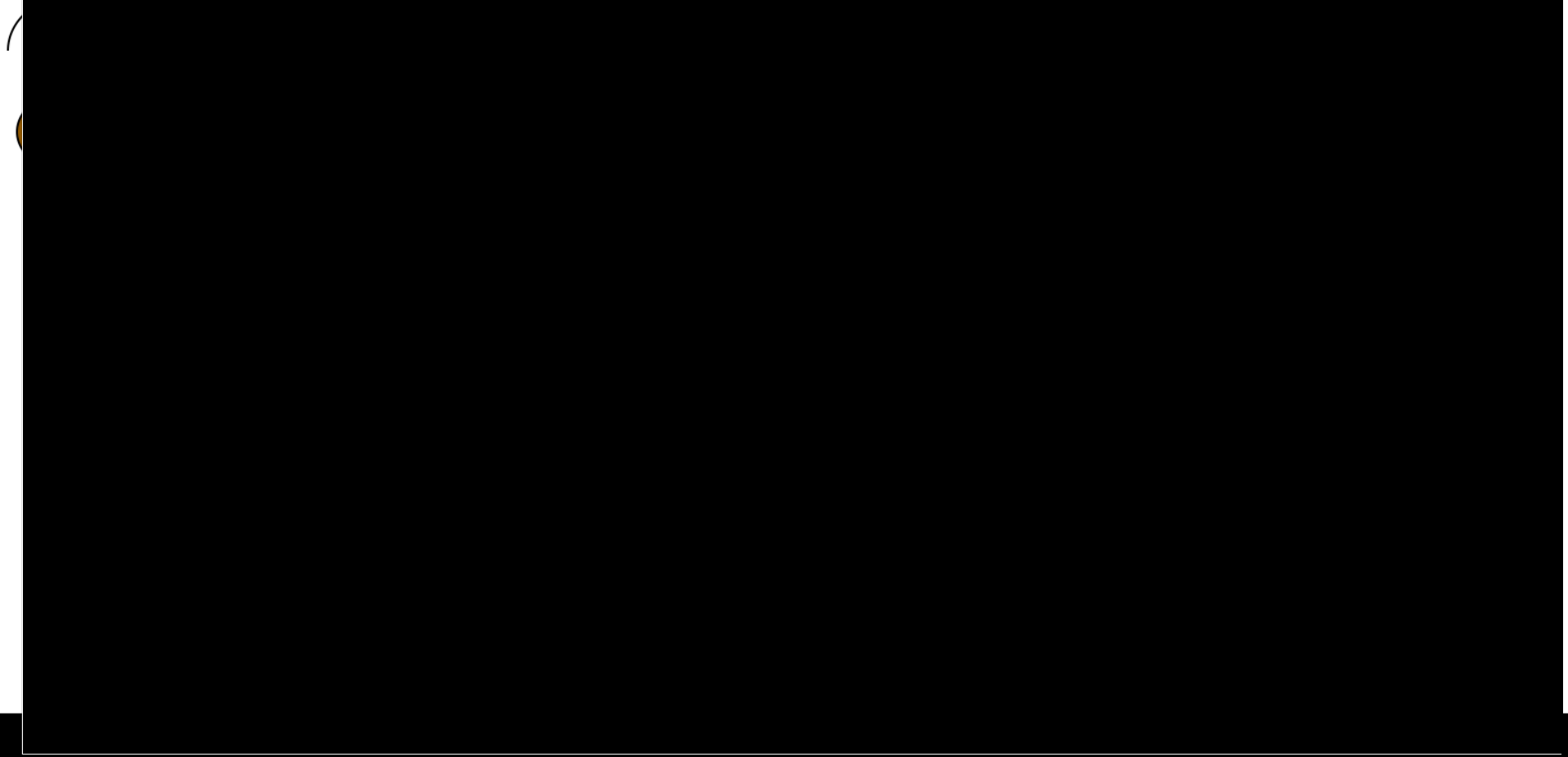
GOAL 3: **Create novel energy crops using wide hybridization technology that enables sorghum to be crossed to cane and other energy grasses.**

Deliverable: Novel wide-hybrid sorcane energy crops propagated vegetatively and/or through seed production and an understanding of the genetic basis of wide hybridization.

Metrics: [1] Totally new wide-hybrid energy crops with high yield and will be generated, and [2] Methods for mass-producing wide hybrid seed will be developed.



NEW

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GOAL 3: Create novel energy crops using wide hybridization technology.

Milestones:

18 months:

- Ability to create & screen 1000s of *Sorghum*/*Saccharum* hybrids (SorCanes).
- Chromosome-doubled *iap* sorghums

36 months:

- Evaluation of initial wide-hybrids
- Improved *iap* sorghums; Creating better *SorCanes*

54 months:

- High-performing clonal wide hybrids in testing
- Parents for seed-based production possibly identified

Old --- these are METRICS

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GOAL 3: **Create novel energy crops using wide hybridization technology.**

Milestones:

18 months:

- **Create & screen 1000s of *Sorghum*/*Saccharum* hybrids; select top ~1% (30-50) and ~10% (300-500) "cuts".**
- **Sorghum/Sorghum crosses to improve *iap* sorghums**
- **Chromosome-double *iap* sorghums**

36 months:

- **Evaluation of initial wave of wide-hybrids**
- **Creation of improved wide-hybrids using improved parents and parental combinations**

54 months:

Two Synergistic Pipelines for Energy Crop Development