

**W3186
Minutes
5 November 2015**

Housekeeping:

Registration will be \$50. The bathrooms are around the hall. Refreshments are at the table.

Administrative Report (Dave Thompson):

W3186 - report good, impact statement made, our mid-term review is this year to decide if renewal is appropriate, new project by Jan 2018, thanks to members.

Guest Speaker from Cotton Council (Don Parker):

Don works out of Washington DC. The Cotton Council was born in 1930s to unify cotton industry with 7 sections (growers, merchants, ginning, textile mills, warehouses, seed oil and one other). Cotton Council develops policy statements every year so that they are updated and current. At one point, Cotton Council decided research was needed and should be supported - a check off program was started and the Cotton Board was created because the checkoff money should not be associated or controlled by a political lobby i.e. the Cotton Board. The Cotton Board contracts with Cotton Incorporated to carry out the research. Cotton Council works hard to convince Congress that research is important and to keep or increase funding.

This year several states applied for a Section 18 for Counter[®] in cotton. Request stalled in EPA. Cotton Council sat down with EPA (whose position on the Section 18 was "no" to begin and end with). EPA says their position based upon modeled presence in water and a study from Columbia University on correlations and predictions on children. Yet EPA has lots of GLP data on organo-phosphates that EPA trivializes. Some scientists undermine the greater science with poor science.

WPS can really impact us all. Revisions just released - annual training, prohibit pesticide handling by those under 18, require records for 2 years, decontamination water per employee, natural water can no longer be used, REI greater than 48 hrs in field or 4 hrs in greenhouse must be posted at each entry point, rules for respirations now follow OSHA standards, PPE disposal.

Many people in DC think that all food can be produced without pesticide and cite organic food availability as their evidence.

Bee decline - some evidence shows that number of hives, amount of honey is at all time high. Anti-pesticide environmental group wants the message to be about pesticides (insecticide, fungicide, etc).

Reports:

KL - Reniform infested field at station demonstrates damage, cotton breeding for Rr resistance - see tolerance but no 0 level of reproduction - Barbren lines have lower levels; Velum[®] and cultivar trials, Velum lowers Rr nematode and ups most yields but not as high as desired (5% average increase); a cadillac treatment of Velum, Gaucho[®] and F trt was the best; Vydate[®] as an in furrow spray works well;

Pasteuria on root-knot with Avicta® and Aeris® at a moderate rate works well; breeding of cotton in AL it is root-knot that drives yield loss not Fusarium; Race 1 of Fusarium is most prevalent.

BR - Rr resistance in soybean; 27 introductions RI none are 0, some PI are in 1-15 ranges others are in the 100-600 range, the controls are as low as 3.4 and as high as 1046, these introductions all have SCN resistance, 116 lines 4 commercial lines were similar to Anand and Hartwig as well as 3 advanced lines from MO; 219 breeder lines had 19 lines that were resistant to Rr; Pecan root-knot host test also some on eastern black walnut, shagbark hickory, some on southern red oak not on pin or burr oak, very damaging in pecan (also reported on some oaks in Florida and on laurel)

PR – Root-knot resistance in carrot = Brasilia-1252 (Mj-1 Mi genes) and Homs (Mi and Mj); no commercial resistance currently available - control is chemical right now; 11 resistant lines globally there is a large pool of germplasm, screen against Mi, Mj, Ma and Mh (mostly Mi and Mh), galling for some lines are 0.1 for Mj in Brasilia and Homs sources with little variation among Mj isolates, for Mi not as good (1.8 lowest) and there are fewer resistant lines and there are interactions between carrot lines and nematode isolates. Tomato Mi-1 gene resistance-breaking nematodes do not also express virulence on resistant carrot; Ma good resistance, Mh some effective resistance in carrots but variation/interaction between nematode isolates and resistant carrot lines; Work on pairing resistant and susceptible host plants and nematode isolates for guidance to breeding programs.

DD - genetic purity of resistant seed is important; on peach rootstock similar purity issues, plus M. floridensis always reproduces on peach, they have isolated Ma and Mj from peach Flragon (?) rootstock; temperature effect on Mi resistant tomato, the nematode does not reproduce but the yield is always down

BS - Breadfruit nematode survey - Rr more common than expected, *Pratylenchus* also there and of concern because of vegetative propagation, found a heteroderid; Survey for EPN shows they are not uncommon on Oahu or Hawaii, Oscheus is popping up; investigating mint as a potential living mulch cover crop.

SH - Mint, lesion, and verticillium interaction difficult on the plant, plants do not regrow after cutting, reduces hay yield, also find pin, root-knot, pin, ring, dagger, spiral common but not at high numbers, drip irrigation gives lower nematode populations compared to furrow irrigation; Vydate, Velum, Movento®, Nimitz®, Ditera® = some control nematodes but are phytotoxic with plants not recovering from cutting; Sugarbeet = tolerant cultivars can increase yields compared to susceptible cultivars, fumigation coupled with tolerant cv gives good yld, Nimitz seems to be a good treatment, Movento needs multiple critical applications use as a curative, evaluating green manure trap crops; Potato = use a spader to incorporate Vapam®, cover crop has biofumigant capacity (does pin survive better in dryer soils? compared to other criconemas, they go in and out of anhydrobiosis quickly).

EM - Pinewood nema and Rr- the ying and yang in LA, Rr is the big problem on cotton and soybean; Pinewood endemic in US, first identified in LA in 1934, last 5 yrs more damage in US, probably related to insect vector relations, involves fungus like *Gliocladium virens* but it like lots of fungi, (video from Ed on PWN feeding), 36% of symptomatic trees positive for nematodes - in US the beetles do not carry as many PWN as those vectors in Japan (Ed used kitchen sink drain screens) could this be something for mist chamber? PW is more evident now than in last several decades; also looking at micro-satellites in Rr

CO - Soybean and Rr - resistance and fumigants, Resistant and susceptible cultivars showed little increase after fumigation with Telone; soil texture effects Rr population - best EC is 33-41 in the first meter depth

HM - do we address problems as one size fits all or location specific, We are usually location specific, compost amendment for nematode management, cover crops, rotations tillage and "soil health" (the term is becoming more common), Evaluate mustard and oilseed radish cover crops that differ in response to SBCN using Enrichment Index and Structure Index - soil has a substantial effect on soil health, using Principle Component Analysis shows that soils do not overlap but separate by country and even by soil type within a country - so we may need to look at location specific recommendations

VC/GL - Soybean and SCN resistance gene discovery by using genes expressed in resistant cells, have identified a few genes that when over expressed reduce nematode development in susceptible cultivars (ie induce resistance), conducted similar experimenters with cotton the same soybean gene

CM - Coming from a plant perspective, identified several (17) new PIs with resistance to SCN, Mi and Rr in MG 000-II, have developed QTL markers for major genes, using marker-assisted backcrossing to pyramid nematode resistance

TP - Criconematid bar coding, mitochondrial gene order is quite different among nematodes - more so than other groups of animals; DNA bar codes cluster, have measurable properties, are not randomly distributed, provide insights into evolutionary patterns, agricultural pests have large geographical ranges and low haplotype diversity; Nematodes have not had much biogeography research; *Pratylenchus* 68 species, 27 species in NA, 1/3 have males, starting to bar code, host not a determining factor on the haplotype that is found in the field (corn may have up to five species/haplotypes), please send Tom samples that we might have in the labs or ask Tom for primers to use in different labs

RI - *Globodera ellingtonae* first discovered in 2008 in OR, Ro and Pa resistance genes in potato have varying effects on Ge, damage of Ge on potato is 11-17% at 40 egg/g and closer to 20% loss at 80 egg/g soil, often times the differences were not significant so Ge does not appear to be so damaging, most potato cultivars support Ge reproduction but Russet Burbank among best host cultivar, Damage threshold is high to be almost unrealistic

CJ - Dominus (a MIT biological derived product registered by EPA) at 15 gal/ac looks good

Business meeting:

1. Membership: Russ will contact WSU and the new hire for membership.
2. Joint Proposals:
3. Annual Report: 60 days or January 7 2016 due date, Cathy and Brent will write report
4. Meeting site: 2016 in Davis, 2017 in Oregon, NE331 would like to meet together in 2017, S1066 will join us in Davis, target the first or second week

of November (some expressed interest in meeting earlier even September). We need to schedule at least 2 days for a joint meeting. We might want to schedule students first and have people using Macs all present together.

5. Secretary: Ed Caswell-Chen (as host will act as chair), Brent will serve as secretary but not automatically rotate into chair.

6. Thanks offered to Kathy, Gary, Pat, and the Auburn students for hosting an excellent meeting.