McLean County Bar Association February 17th CLE Luncheon

“Drones and the Legal Challenges of Innovation”

One Hour of CLE Credit

Presented by: Mitch Ernst, Illinois Agriculture Associates

And

Ryan Gammelgard, State Farm

Agenda

11:45 a.m. – 12:00 p.m.  Serve Lunch
12:00 p.m. – 12:30 p.m.  Speaker Mitch Ernst
12:30 p.m. – 1:00 p.m.   Speaker Ryan Gammelgard
D. Mitchell Ernst, is a general practice attorney in Danvers, Illinois and operates a grain farm. Prior to general practice, Mitch served with the Livingston Co. States Attorney’s Office. Internships were served with the General Counsel’s Office of GROWMARK Inc. and with the United States Patent and Trademark Office Beijing, China; where, under US Embassy IP Attache attorney Mark Cohen, agricultural intellectual property and WTO IP compliance were hot topics, See: Monsanto, Delta Pine GMO Debacle, China 2007.

Mitch is a member of the McLean County Bar Association & MCBA CLE Committee, the Illinois State Bar Association, the American Agricultural Law Association, and the McLean County Farm Bureau Policy Committee.

Mitch is a graduate of the 1996 Illinois Agricultural Leadership Program (China Troupe!). He completed his J.D. at St. Louis University with a certificate in International Law and an Executive Masters Degree in International Business. Owing to a continuing interest in agriculture and technology, he also completed his Masters in Agricultural Science, Biotech, and Business at Illinois State University for patent bar qualification and a LL.M. in Intellectual Property from Washington University St. Louis in conjunction with Tsinghua University Beijing, China.

Most Importantly: He is an avid Raquet Ball Player, Conservationist, China travler, and Dad...
**Ryan D. Gammelgard** is Counsel in the State Farm Corporate Law Department, where he works in the Public Policy Resource Group. He helps coordinate, develop, and analyze the company’s public policy positions and various legislative endeavors, including those related to unmanned aerial vehicles.

Prior to State Farm, Ryan was an Attorney II at The Office of the General Counsel, Illinois Agricultural Association & Affiliated Companies in Bloomington, Illinois. Previously, he was an Associate Attorney at Livingston, Barger, Brandt & Schroeder in Bloomington, Illinois.

Ryan is a member of the Illinois State Bar Association (ISBA) and the Mclean County Bar Association (MCBA). He currently serves on the ISBA Standing Committee on Continuing Legal Education and is the past Chair of the ISBA Corporate Law Departments Section Council. He also serves as the 2nd Vice-President of the MCBA and co-Chair of its Corporate Counsel Committee. In 2012, he received the MCBA Young Lawyer of the Year award.

Ryan is a graduate of Leadership McLean County and has been recognized in the Bloomington Pantagraph’s “20 under 40” list. He is a graduate of the University of Illinois College Of Law. In law school he was named to the Dean’s List, received the Rickert Award for Excellence in Advocacy, and was selected to the College’s National Trial Team and National Moot Court Team.
DRONES AND THE LEGAL CHALLENGES OF INNOVATION.
CONVENTIONAL WISDOM:
Drones are Here To Stay = Paradigm Shift

Opportunity Analysis (SWAT):

i. Who are the Potential Clients?
   Drone Related Agribusiness

ii. What is the applicable body of law?
   FAA to Decide Sept 2015;
   Intellectual Property Law

iii. What are the determinate legal issues?
   Timely legislation; Data Control
i. Potential clients?
OR

b.
OR

c.
ii. What is the appropriate law?

a. Federal Level


FAA Public Guidance for Petitions for Exemption Under Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations

FAA Notice of interpretation with request for comment: Interpretation of the Special Rule for Model aircraft

FAA September 15 Deadline for Drone Rules
b. State Level

725 ILCS 167 Freedom from Drone Surveillance Act.
January 6, 2015
- a law enforcement agency may not use a drone to gather information.
- warrants are required
- 4th Amendment Issue

515 ILCS 5/20-105 August 16, 2013
- makes it a Class A misdemeanor to “use a drone in a way that interferes with another person’s lawful taking of wildlife or aquatic life.”

Reality: legislation all but nonexistent.
Drones and Agriculture:

I. Agriculture is Poised to be the largest user of Drones,
   100,000 new jobs,
   82 billion in economic activity,
   Japan, Canada and Australia way ahead.

II. Drone Definition: Simply, An Aerial Platform for Tools
    Primarily high resolution spectrometry.
III. Uses:

1. PLANT RESEARCH

- Hybrid phenology / trait assessment for breeding
- Canopy profiling
- Wind profile / wind shear information
- Temperature / pressure profiling
- Spore, dust, pollen collection
- Water quality assessments and survey
- Methane and CO2 sensing
- Wirelessly collect data from ground sensors
- Crop counting
III. Uses

2. CROP PRODUCTION
   – Crop status (growing stage, yield estimates, etc.)
   – Precision Agriculture prescription data
   – Tiling/drainage evaluation
   – Time saving pre-assessment for field tasks
   – Planting and harvest evaluation
   – Pathogen introduction and tracking + Weed levels
III. Uses

3. CROP PROTECTION
   – Prevent birds from eating high value crops
   – Prevent birds that cause disease to crops
   – Detect and track plant disease
   – Identify wildlife that may consume crops
IV. TOOLS / SENSORS:

VISUAL SENSORS

High resolution, low distortion camera (RGB)

Ideal for:

a. Aerial mapping and imaging
b. Photogrammetry and 3D reconstruction
c. Plant counting
d. Surveying and land use applications
IV. TOOLS / SENSORS: based on spectral analysis concepts

THERMAL INFRARED (TIR) SENSORS

Microbolometer thermal sensors are best utilized in:

a. Heat signature detection
b. Livestock detection
c. Surveillance and security
d. Water temperature and water source identification
IV. **TOOLS / SENSORS:** based on spectral analysis concepts

**MULTISPECTRAL and HYPERSPECTRAL SENSORS:**
Measurement of chlorophyll, lignin and water in plants

Multispectral sensors are used widely in:

- a. Plant health measurement
- b. Water quality assessment
- c. Vegetation index calculation
- d. Plant counting
IV. TOOLS / SENSORS:

LIDAR SENSOR:

   LASER rangefinder

   a. 3D digital surface modeling, and flood mapping
   b. Penetrates through vegetation

TAKE AWAY: Drones and Sensors will represent an exponentially large Data Collection System.
iii. Issues for Agricultural Drones and Tools

1. Exemption Request under 333 for Start Ups, See FAA Public Guidance for For Exemptions Filed under 333, Public Law 112-95 49 USC 44704.

2. Only Hobby Drone use currently: Caution! No Deductions for Farmer Drones = FAA trigger… FAA currently in the “Honey Moon” phase.

iii. Issues for Agricultural Drones and Sensors/Tools

Data the IP Problem: Yours, mine or ours?

a. Monsanto currently wants farmer’s data to flow directly from the farmer’s planters and combines directly to Monsanto’s “Cloud”.

b. Data is primarily useful ONLY in the aggregate (perspective matters) and particularly to those entities with the titanic resources to crunch it.

c. How will the appropriate aggregate user be determined i.e. the farmer as an aggregate user or Multi National Company as an aggregate user.
Data the IP Problem: Yours, mine or ours?

a. Currently the farmer owns the data generated on his farm.

b. Conundrum: who owns the data where a fertilizer company applying fertilizer to the farmer’s field collects the data for a number of farmers in a paid service.

c. Data Agreements and Contract Issues: Currently John Deer under purchase agreements has the license to use the data produced from their machine “unless the Purchaser/Buyer” opts out.

* Data Ownership Consideration: Traditionally organized Cooperatives for Data.
Drones and the Legal Challenges of Innovation

February 17, 2015

McLean County Bar Association

Mitch Ernst & Ryan Gammelgard
Drones

• The Legal and Regulatory Environment
Innovation

- Tie into the larger discussion of legal challenges and opportunities associated with innovation.
Drones
Hobby Uses

• Individuals using drones for personal use (i.e., as a hobby) may be exempt from having to gain federal authorization
Hobby Use (FAA Guidance)

• Fly below 400 feet and remain clear of surrounding obstacles
• Keep the aircraft within visual line of sight at all times
• Remain well clear of and do not interfere with manned aircraft operations
• Don't fly within 5 miles of an airport unless you contact the airport and control tower before flying
• Don't fly near people or stadiums
• Don't fly an aircraft that weighs more than 55 lbs
• Don't be careless or reckless with your unmanned aircraft – you could be fined for endangering people or other aircraft
Commercial Uses

- Agricultural
- Real Estate
- Filmmaking
- Pipelines
- Entertainment
Commercial Uses
The Legal and Regulatory Environment

• Federal - FAA prohibits commercial use of drones without specific authorization
• State – A number of states are enacting drone laws (as of Dec. 2014 – 20 states)
• Local – Drone laws are increasingly being enacted at the local level
• Laws of General Application
# FAA Interpretation

<table>
<thead>
<tr>
<th>Hobby</th>
<th>Commercial</th>
</tr>
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<tbody>
<tr>
<td>Photographs for personal use</td>
<td>Photographs that you sell (e.g., real estate, weddings)</td>
</tr>
<tr>
<td>Using a drone to move a box for no</td>
<td>Moving boxes for a fee</td>
</tr>
<tr>
<td>compensation</td>
<td></td>
</tr>
<tr>
<td>Viewing fields to monitor crops that you</td>
<td>Viewing fields to monitor crops that are part of a commercial</td>
</tr>
<tr>
<td>grow for your own personal enjoyment</td>
<td>farming operation</td>
</tr>
</tbody>
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32 Years

1981 – FAA – Advisory Circular 91-57
2005 – FAA Memorandum
2012 – Congress – FMRA
2013 – FAA – “Roadmap” and 6 Test Sites
2015

• Congressional hearings on drones
• States continue to explore regulating drones
• FAA issues guidance to local law enforcement to help enforce drone laws
• FAA releases proposed rules on small drone (less than 55 pounds) on February 15, 2015
• Presidential memorandum on drones and privacy issued on February 15, 2015
FAA Proposed Rules

• Flights restricted near airports or other restricted airspace.
• Applies to drones that weigh less than 55 pounds,
• Fly up to 100 miles per hour and up to 500 feet AGL.
• Flights during daylight hours and within visual line of sight only.
  – FAA researching how to permit beyond line of sight.
FAA Proposed Rules (Cont’d)

• Must obtain an “unmanned operator certificate” that is renewable every two years. Certificate testing will be widely available at local testing centers. A medical exam will not be required.

• Operators must conduct a pre-flight inspection.

• Will not need to obtain an airworthiness certificate.

• Whether to establish a “microdrone” category for 4.4 lbs or less.
Presidential Memo

• Federal agencies will look at drone policies and procedures as they relate to privacy protections, civil rights, and civil liberties
• Multi-stakeholder process to develop best practices for privacy, accountability, and transparency for commercial and private drone use
The Risk Response Continuum
A Range of Responses to Technological Risk

Precautionary Principle
- Censorship
- Info suppression
- Product bans

Prohibition
- Administrative mandates
- Restrictive defaults
- Licensing & permits
- Industry guidance

Anticipatory Regulation
- Education & Media Literacy
- Labeling / Transparency
- User empowerment
- Self-regulation

Permissioned Innovation
- Experience / Experiments
- Learning / Coping
- Social norms & pressure

Resiliency

Adaptation

Permissionless Innovation

Source: Adam Thierer, Mercatus Center at George Mason University
Resources

• National Conference of State Legislatures (State Survey) – www.ncsl.org

• Federal Aviation Administration – www.faa.gov

• Know Before You Fly (hobby) – knowbeforeyoufly.org

• Twitter - @dronelaws