

2020

## A Farm Bill Proposal: Pragmatic Protection of Farmers' Privacy and Property Interests in Agricultural Data

William Mencer

Follow this and additional works at: <https://dc.law.mc.edu/lawreview>



Part of the [Law Commons](#)

---

### Recommended Citation

Mencer, William (2020) "A Farm Bill Proposal: Pragmatic Protection of Farmers' Privacy and Property Interests in Agricultural Data," *Mississippi College Law Review*. Vol. 38 : Iss. 3 , Article 2.

Available at: <https://dc.law.mc.edu/lawreview/vol38/iss3/2>

This Comment is brought to you for free and open access by MC Law Digital Commons. It has been accepted for inclusion in Mississippi College Law Review by an authorized editor of MC Law Digital Commons. For more information, please contact [walter@mc.edu](mailto:walter@mc.edu).

# A FARM BILL PROPOSAL: PRAGMATIC PROTECTION OF FARMERS' PRIVACY AND PROPERTY INTERESTS IN AGRICULTURAL DATA

*William Mencer\**

## I. INTRODUCTION

As environmental concerns and projections of exponential population growth loom over earth's horizon,<sup>1</sup> the American agricultural industry is becoming more data driven in an effort to conserve resources and grow more crops on less land.<sup>2</sup> By extracting information from agricultural data ("Ag Data"), farmers are capable of optimizing their operations and measuring what was previously unmeasurable by utilizing the power of data collection technologies and artificial intelligence to assist human decision making.<sup>3</sup> In places such as the Mississippi Delta, farmers have experimented with the power of Ag Data by implementing real-time remote field monitors capable of measuring a field's water

---

\* J.D. Candidate, Class of 2020, Mississippi College School of Law. Thank you to the *Law Review* at Mississippi College School of Law for editing and presenting this work. Also deserving of special thanks and recognition is Professor Christoph Henkel as he provided valuable advice and inspiration throughout the drafting process. I would also like to thank all of the farmers who took time out of their busy schedules to share their knowledge, experience, and opinion on this subject. Lastly, it is worth noting that this article was written in 2018 and may not perfectly reflect the state of the law on this subject as of the current date.

1. *World Population Projected to Reach 9.8 Billion in 2050 and 11.2 Billion in 2100*, U.N. DEP'T OF ECON. & SOC. AFFAIRS (June 21, 2017), [www.un.org/development/desa/en/news/population/world-population-prospects-2017.html](http://www.un.org/development/desa/en/news/population/world-population-prospects-2017.html). See Synthesis Report, *How to Feed the World by 2050*, FOOD AND AGRIC. ORG. OF THE U.N. (Oct. 12-13, 2009), [http://www.fao.org/fileadmin/templates/wsfs/docs/expert\\_paper/How\\_to\\_Feed\\_the\\_World\\_in\\_2050.pdf](http://www.fao.org/fileadmin/templates/wsfs/docs/expert_paper/How_to_Feed_the_World_in_2050.pdf); see also *High Level Expert Forum: How to Feed the World by 2050*, FOOD AND AGRIC. ORG. OF THE U.N. (Oct. 12-13, 2009), <http://www.fao.org/wsfs/forum2050/wsfs-forum/en/>.

2. John Ciempa, *The Benefits of Sustainable Agriculture and How We Get There*, THE WEATHER COMPANY: AN IBM BUSINESS (Nov. 15, 2018), <https://business.weather.com/blog/the-benefits-of-sustainable-agriculture>. Carl Weinschenk, *C Spire Helping to Test IoT in Agriculture on Mississippi Delta Farms*, TELECOMPETITOR (Sept. 17, 2018, 2:48PM), <https://www.telecompetitor.com/c-spire-helping-to-test-iot-in-agriculture-on-mississippi-delta-farms/>.

3. THE YIELD: TECHNOLOGY SOLUTIONS, <https://www.theyield.com/> (last visited Mar. 3, 2019). See *Microsoft AI + The Yield: Taking the guesswork out of farming ft. Common*, YOUTUBE (Apr. 22, 2018), <https://youtu.be/7rzufx1GH4o>.

distribution and absorption.<sup>4</sup> These monitors gather information and transfer it to the farmer's analytics system where the Ag Data is converted into predictive models.<sup>5</sup> The data-derived insights generated from these models can increase yields by as much as fifteen percent and increase farm revenue by \$100,000 annually for a typical 1,000-acre farm.<sup>6</sup> Due to the substantial economic value of these capabilities, there are many in the agriculture industry that now view Ag Data as a commodity itself and hope to capitalize on the opportunity to commodify Ag Data. However, the commodification of Ag Data will require an answer to a question that has yet to be clearly answered: Who owns the Ag Data collected on farms?

Many companies with specialties in farm equipment manufacturing, crop production inputs, and software design have publicly stated that the data collected on farms should belong to farmers.<sup>7</sup> However, some of these same companies actively collect, store, transfer, and sell Ag Data without clearly expressing their intent to do so with farmers.<sup>8</sup> For instance, as a means of establishing a new repair market in which farmers will no longer be allowed to fix, tinker, or modify the tractors they contractually purchase, John Deere utilizes a "turn the key to agree" style licensing agreement which legally allows the company to collect real-time telematics data from farmer's tractors in order for the company to predict equipment failures and provide repair services.<sup>9</sup> By

---

4. Jack Weatherly, *Early Results from Delta Water Conservation Project Said Positive*, MISS. BUS. J. (Sept. 21, 2018), <https://msbusiness.com/2018/09/early-results-from-delta-water-conservation-project-said-positive/>; Weinschenk, *supra* note 2.

5. THE YIELD: TECHNOLOGY SOLUTIONS, *supra* note 3.

6. Weatherly, *supra* note 4.

7. See AG DATA TRANSPARENT CERTIFIED COMPANIES, <https://www.agdatatransparent.com/certified>.

8. Jonathan Hettinger, *Few Big Ag Companies Have Yet to Follow Through on Data Transparency Pledge*, THE NEW FOOD ECONOMY (Mar. 3, 2019), <https://newfoodeconomy.org/big-ag-follow-through-farm-bureau-data-transparency-pledge/>.

9. Rian Wanstreet, *America's Farmers Are Becoming Prisoners to Agriculture's Technological Revolution*, MOTHERBOARD (Mar. 8, 2018, 8:00AM), [https://motherboard.vice.com/en\\_us/article/a34pp4/john-deere-tractor-hacking-big-data-surveillance](https://motherboard.vice.com/en_us/article/a34pp4/john-deere-tractor-hacking-big-data-surveillance); see Shannon L. Ferrell, *All Data Big and Small: Legal Issues Surrounding Agricultural Data*, AG TECHNOLOGY & THE LAW: ADVANCING AMERICAN AGRICULTURE 2, 3 (Aug. 14-15, 2018), [www.nationalaglawcenter.org/wp-content/uploads/2018/08/Ferrell--All-Data-Big-and-Small.pdf](http://www.nationalaglawcenter.org/wp-content/uploads/2018/08/Ferrell--All-Data-Big-and-Small.pdf). After conducting interviews with farmers in the Mississippi and Arkansas deltas, I was able to verify that John Deere does in fact sell the farmers' Ag Data it collects from machine to machine technologies. Specifically, a farmer from Arkansas inquired with a John Deere sales agent regarding what Ag Data John Deere actually collects and shares. After consulting with higher level employees, the sales agent was able to confirm the farmer's fears: that

using the lure of new technology and increased efficiency, John Deere masks its true intentions and effectively tricks farmers into signing away their right to do something as fundamental as repair one's own equipment.<sup>10</sup>

Another example is that of Farmers Business Network ("FBN"). FBN markets a subscription service in which farmers can purchase access to "tens of millions of acres of precision data" and analytics software capable of seamlessly transferring a farmer's equipment data to the FBN data base.<sup>11</sup> FBN markets its platform as a transparent means of leveling the playing field for farmers by "democratizing information, providing unbiased analytics, and creating competition" in input markets.<sup>12</sup> However, if a farmer were to sift through the company's privacy policy,<sup>13</sup> the farmer may be surprised to learn that FBN may transmit the farmer's data to a third party's storage facility in either Canada or Romania.<sup>14</sup> Because these countries each have different cybersecurity infrastructures and different laws regulating the use, storage, and transfer of data, some farmers have grown skeptical of just how trustworthy platforms such as FBN's actually are and worry that such platforms could even be a threat to national security.<sup>15</sup>

Accordingly, many farmers are concerned that too much Ag Data in the hands of large companies with lop-sided bargaining power could create an environment in which price fixing, product tying, and other market distorting behaviors would have the potential to occur. It is under these circumstances that many farmers wish to retain ownership interests in the data collected on their farms in order to ensure the protection, privacy, and marketable potential of the information generated from their production methods.

Section II of this Comment will explore the numerous issues surrounding Ag Data as well as its evolution, future, and potential. Section III will discuss the current legal frameworks farmers have to protect their data, explain why these frameworks should be replaced with a uniform

---

John Deere does share his Ag Data and is "compensated" for such data by Bayer, formerly known as Monsanto.

10. Wanstreet, *supra* note 9.

11. FARMERS BUSINESS NETWORK, <https://www.fbn.com/analytics> (last visited Mar. 3, 2019); FARMERS BUSINESS NETWORK, <https://www.fbn.com/analytics/data-storage-integration> (last visited Mar. 3, 2019).

12. FARMERS BUSINESS NETWORK, <https://www.fbn.com/about#farmer-experience> (last visited Mar. 3, 2019).

13. See FARMERS BUSINESS NETWORK, <https://www.fbn.com/page/show/privacy-policy> (last visited Mar. 3, 2019).

14. See *Privacy Policy: Information Collection*, FARMERS BUSINESS NETWORK (July 25, 2019), <https://www.fbn.com/page/show/privacy-policy>.

15. See Wanstreet, *supra* note 9.

national law, and provide a list of principles that should be included in any form of legislative action pertaining to Ag Data.

## II. BACKGROUND

As farm incomes have steadily declined over the past twelve years and recent geopolitical tensions have adversely affected agricultural trade,<sup>16</sup> apprehensions have become more pronounced, and divisions have widened among large and small-scale agricultural producers. As more and more small-scale farmers are left with little choice but to sell the family farm, some criticize larger farms for abandoning their roots and playing *the corporate game* due to their implementation of expensive precision agriculture practices and volume based production methods.<sup>17</sup> As a consequence of this sentiment, negative connotations are sometimes associated with the term “precision agriculture,” and some farmers are skeptical of precision production practices and technologies due to a belief that doing so could violate their moral compass, lead to the corporate takeover of a traditional mom and pop industry, or simply because it sounds expensive. Accordingly, some small-scale producers have shifted the focus of their operations from quantity to quality as they have taken advantage of consumers’ recent interest in traceable, healthy food sources.<sup>18</sup>

---

16. See UNITED STATES AGRIBUSINESS REPORT, AMERICAS MACHINERY OUTLOOK – INDUSTRY TRENDS AND DEVELOPMENTS; BMI AGRIBUSINESS REPORT (July 30, 2018), <https://advance.lexis.com/document/?pdmfid=1000516&crd=fe2f3774-65ff-4d39-85ec-007a9f81ad27&pddocfullpath=%2Fshared%2Fdocument%2Fcompany-financial%2Furn%3AcontentItem%3A5T3H-BDC1-F008-K257-00000-00&pddocid=urn%3AcontentItem%3A5T3H-BDC1-F008-K257-00000-00&pdcontentcomponentid=373759&pdteaserkey=sr0&pditab=allpods&ecomp=3y9Lk&earg=sr0&prid=ebf50c14-b76c-470a-8f27-a5eb11fde186>. See also John Newton, *Net Farm Income Projected to Drop to 12-Year Low: For Most, On-Farm Household Income Remains Negative*, FARM BUREAU (Feb. 12, 2018), [www.fb.org/market-intel/net-farm-income-projected-to-drop-to-12-year-low](http://www.fb.org/market-intel/net-farm-income-projected-to-drop-to-12-year-low); Jeff Daniels, *Rising US-China Trade Tensions ‘Couldn’t Come at a Worse Time’: Iowa Agriculture Secretary*, CNBC (Sept. 18, 2018, 9:44PM), <https://www.cnbc.com/2018/09/19/escalation-in-trade-war-comes-at-worse-time-says-iowa-ag-official.html>.

17. See Tamar Haspel, *Small vs. Large: Which size farm is better for the planet?*, THE WASHINGTON POST (Sept. 2, 2014), [https://www.washingtonpost.com/lifestyle/food/small-vs-large-which-size-farm-is-better-for-the-planet/2014/08/29/ac2a3dc8-2e2d-11e4-994d-202962a9150c\\_story.html?noredirect=on&utm\\_term=.b769ec9e10f1](https://www.washingtonpost.com/lifestyle/food/small-vs-large-which-size-farm-is-better-for-the-planet/2014/08/29/ac2a3dc8-2e2d-11e4-994d-202962a9150c_story.html?noredirect=on&utm_term=.b769ec9e10f1). See also *Fact Check: Corporate Farms Vs. Family Farms*, FARM POLICY FACTS (Dec. 19, 2016), <https://www.farmpolicyfacts.org/2016/12/fact-check-corporate-farms-vs-family-farms/>.

18. See Kevin Manne, *Does tracking farm to table increase grocery sales?*, U. OF BUFFALO, SCHOOL OF MANAGEMENT (Aug. 26, 2015),

Despite all of this, the reality of the matter is that farms of every sort and size face the same challenge of making production decisions amidst a multitude of perpetually changing, uncontrollable factors. Whether it is burdensome weather in planting and harvest seasons, adverse geopolitics, or volatile prices in commodity markets, these challenges are faced by every individual farmer, and it is in the face of these common hardships that farmers should set aside tangible differences and come together through the acceptance and implementation of *informed farming*.

While precision agriculture practices were only practical for farmers purchasing large equipment, such as tractors and combines equipped with data collecting technologies, informed farming could provide farms of every kind and size with the ability to make optimal decisions for their operations due to groundbreaking and increasingly cost-effective methods of collecting data on their operations. Informed farming could also provide benefits to consumers by giving them the ability to verify the quality of the agricultural products they purchase by utilizing blockchain technology to trace the products' origins.<sup>19</sup> Because the application of information-based management is not limited to row-crop farming, it could also improve outputs in the production of timber, vegetables, fruits, honey, livestock,<sup>20</sup> and turf and lawn,<sup>21</sup> well as recreational activities such planting food plots for hunting.

By providing a more equal and affordable opportunity to collect data, informed farming has the potential to level the playing field not only between small and large farms but also between farmers and large companies. If farmers are able to secure ownership of the data collected on their farms, perhaps Ag Data could be commoditized and sold just as other commodities, in turn giving farmers much needed bargaining power with corporate giants and providing some with the long-lost ability to preserve the family farm and restore the American farmer to its former glory as a prosperous contributor to the American economy.

---

<https://mgt.buffalo.edu/about/news.host.html/content/shared/mgt/news/do-we-really-want-to-track-food-from-farm-to-table.detail.html>.

19. See *id.* See also Todd J. Janzen, *Current and Emerging Issues for Ag Tech*, NAT. AGRIC. LAW CTR. CONF., AGRIC. TECH. & THE LAW: ADVANCING AM. AGRIC. 5-6 (Aug. 15, 2018), <https://nationalaglawcenter.org/wp-content/uploads/2018/08/1st-session.pdf>; UNITED STATES BMI AGRIBUSINESS REPORT, *supra* note 16.

20. By utilizing machine to machine sensors, drones, GPS-enabled collars, and data analytics systems and servers, livestock farmers can better monitor fences, engage in fenceless farming, increase grazing and feed management, as well as track livestock health, localization, and calving cycles. See UNITED STATES BMI AGRIBUSINESS REPORT, *supra* note 16.

21. See Scotts Lawn, *My Lawn App from Scotts – Simplify Lawn Care* (Feb. 9, 2015), YOUTUBE, [https://youtu.be/270r4mCz6\\_A](https://youtu.be/270r4mCz6_A).

A. *Evolution of Modern Precision Agriculture Practices and Technologies*

Historically, precision farming has always been a fundamental fiber of American agriculture. Early American Presidents George Washington and Thomas Jefferson were known to keep written records of their various methods of fertilization and crop rotation in hopes of achieving optimal outcomes for their operations.<sup>22</sup> By the 1920s, spot application of fertilizer had become popular among farmers but was abandoned for uniform application methods due to the increasing size of farms as landowners cleared timber to utilize more land in agricultural production.<sup>23</sup> It was not until the 1980s that the modern concept of precision agriculture came to fruition.<sup>24</sup>

In the 1980s, American farmers faced an economic crisis that had not been seen since the Great Depression.<sup>25</sup> Due to excess stockpiles of commodities, increasing farm debt, burdensome geopolitics, and decreasing populations in rural communities, farmers of the time were left searching for alternative production methods to weather the turbulent market conditions and thinning profit margins.<sup>26</sup> Very much like the farmers today, farmers in the 1980s began to focus their efforts on optimizing their farming outcomes by engaging in the right practices, at the right intensity, and at the right place and time. It was at this point that the modern concept of precision agriculture was born and became common among large farmers with the ability to invest in the necessary technologies.

Technology in the 1980s consisted of Global Positioning System (“GPS”) technology that was capable of spatially referencing data from soil, water, and yields which in turn enabled farmers to engage in the variable rate application of agricultural inputs on vast tracts of land for the

---

22. See *George Washington the Farmer*, GEORGE WASHINGTON’S MOUNT VERNON, <https://www.mountvernon.org/george-washington/farming/> (last visited Mar. 3, 2019). See also *Jefferson and Soil Improvement, Part 2*, THOMAS JEFFERSON DEMONSTRATION GARDEN (Jan. 28, 2014), <https://tjdemogarden.wordpress.com/2011/03/13/jefferson-and-soil-improvement-part-2/>.

23. David Mulla & Raj Khosla, *Historical Evolution and Recent Advances in Precision Farming*, 1-2 <https://www.ispag.org/files/Mulla%20and%20Khosla%202015.pdf> (last visited Mar. 3, 2019).

24. *Id.*

25. *1980s Farm Crisis*, IOWA PUBLIC TELEVISION: MARKET TO MARKET, [www.iptv.org/mtom/classroom/module/13999/farm-crisis](http://www.iptv.org/mtom/classroom/module/13999/farm-crisis) (last visited Mar. 3, 2019).

26. *Id.*

first time.<sup>27</sup> In an effort to simplify and promote the implementation of modern precision agriculture among farmers, many farm equipment manufacturers eventually began to embed precision agriculture technologies (hereinafter “ag tech”) into their equipment models.<sup>28</sup> For instance, new combines came equipped with GPS and yield monitors as part of their standard sales package allowing farmers to not only harvest their crops but also to map and monitor yield variations of crops within their fields. Equipment, such as fertilizer buggies and sprayers, began to include technology with GPS and variable rate application systems that could be paired with farmers’ soil fertility maps or pest reports to enable efficient fertilizer and chemical applications with minimal waste.<sup>29</sup>

### *B. Emerging Methods of Data Collection & Protection*

Emerging methods of collecting Ag Data include the use of unmanned aerial vehicles (“UAVs”), also known as drones, as their implementation is expected to become more widespread throughout the agricultural industry in the near future. The four initial implementations expected for drones in agricultural industries are crop field scanning, GPS map creation, heavy payload transportation, and livestock monitoring with thermal imaging.<sup>30</sup> Additional applications in the future could include the use of drone to spray variable rate applications of chemicals and other inputs of production.

The first generation of drones used in agriculture will be equipped with up to seven types of sensors with visual, video, thermal, multispectral, hyperspectral, and lidar capabilities enabling the farmer to generate orthomosaics, three-dimensional models, point clouds, and digital surface models.<sup>31</sup> These models can be useful in identifying plant disease, assessing water quality, securing volume measurements of crops, detecting heat signatures, and producing surface composition surveys.<sup>32</sup>

---

27. *Precision Agriculture: NRCS Support for Emerging Technologies*, U.S. DEP’T AGRIC. NAT’L. RES. CONSERVATION SERV. 1 (June 2007), [https://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb1043474.pdf](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1043474.pdf).

28. Mulla & Khosla, *supra* note 23, at 24.

29. *Id.* at 5; *Id.* at 10-11.

30. Marco Margaritoff, *Drones in Agriculture: How UAVs Make Farming More Efficient*, THE DRIVE (Feb. 13, 2018), [www.thedrive.com/tech/18456/drones-in-agriculture-how-uavs-make-farming-more-efficient](http://www.thedrive.com/tech/18456/drones-in-agriculture-how-uavs-make-farming-more-efficient).

31. *Sensors: Capture specialized data that can be analyzed for business*, PRECISION HAWK, [www.precisionhawk.com/sensors/](http://www.precisionhawk.com/sensors/) (last visited Mar. 3, 2019).

32. *Id.* Specific farm uses will include: plant counting and yield prediction, plant health indices, plant height measurement, canopy cover mapping, assess field performance, scouting reports, stockpile measuring, measure nitrogen content in wheat, drought stress identification, drainage mapping, measure canopy temperature,



When these sensors are used with GPS technology, they can provide accurate geo-referenced data which can be uploaded to data analytic software for compression and analysis, effectively enabling farmers to reduce costs, have a clearer understanding of crop health in various locations, and make more precise diagnoses and efficient operating decisions.<sup>33</sup>

Another recent innovation in agriculture is that of wireless soil sensors and weather stations.<sup>34</sup> These technologies promise to enable farmers to collect precise weather data and test the static variability of soil in their fields with sensors capable of gauging nutrient, moisture, and temperature metrics.<sup>35</sup> The sensors' findings can be condensed into *management blocks* which allow farmers to analyze soil and crop conditions in specific sections of fields and react to changing conditions in real time.<sup>36</sup> To facilitate this capability, software developers are designing intuitive interfaces for mobile devices, tablets, and computers which allow farmers to quickly analyze data gathered from the sensors after the data has been integrated and aggregated with other data sources like historical crop yields and weather patterns.<sup>37</sup> These technological breakthroughs have incentivized telecommunications companies to invest in the expansion of their coverage into agriculture-heavy regions to take advantage of the business opportunities in the farm-related internet of things ("IoT")<sup>38</sup> by offering improved data flow to the cloud which would enhance the accuracy of the data-derived insights.<sup>39</sup>

Depending on the company from which the farmer purchases the drone, soil sensors, and analytic software, the data collected from the equipment and software may be discretely shared with the manufacturers

---

phenotyping and genotyping, and disease pressure mapping. *See Smarter Agriculture: A turn-key platform that uses drone data to automate and optimize farm management*, PRECISION HAWK, <https://www.precisionhawk.com/smarter-agriculture> (last visited Mar. 3, 2019).

33. *See* Margaritoff, *supra* note 30.

34. *See* TERALYTIC, <https://teralytic.com/index.html> (last visited Mar. 3, 2019).

*See also* THE YIELD: TECHNOLOGY SOLUTIONS, *supra* note 3.

35. Tomer Tzach, *Soil Sensors: A New Direction in Precision Agriculture to Improve Crop Production*, PRECISION AG (Apr. 10, 2018), [www.precisionag.com/systems-management/soil-sensors-a-new-direction-in-precision-agriculture-to-improve-crop-production/](http://www.precisionag.com/systems-management/soil-sensors-a-new-direction-in-precision-agriculture-to-improve-crop-production/).

36. *Id.*

37. *Id.*; Weinschenk, *supra* note 4.

38. IoT refers to the interconnection via the internet of computing devices embedded in everyday objects, enabling them to send and receive data.

39. *See* UNITED STATES BMI AGRIBUSINESS REPORT, *supra* note 16. The Internet of Things can be defined as the trend of connecting "things" that can passively or actively monitor, collect and exchange data over a wired or wireless communication network. *Id.* *See* Weinschenk, *supra* note 4.

of the technology.<sup>40</sup> Although it is unlikely all farmers will initially do so, it is possible for them to develop their own private *data silos*<sup>41</sup> to ensure no third parties have access to their operation's data. However, because data becomes more powerful, and in turn valuable as its quantity increases, it would be in the best interest of farmers to share their data, perhaps anonymously, with other farmers in order to maximize the data-derived decision-making power. Ideally, farmers would have the ability to utilize low-flying satellites to transfer large amounts of data to servers secured with blockchain technology for quick, safe storage while also enabling them to verify who has access to their data.<sup>42</sup> If this could be done, then farmers could sell their data in packages similar to how telecommunications companies sell data packages to purchasers of cellphones, essentially leveling the playing field between farmers and corporate giants.

### C. "Big" and "Small" Agricultural Data

Ag Data has been broadly defined by some as a combination of a farmer's agronomic, application, climate, harvest, invoice, planting, land, machine, pricing, product, service, and weather data.<sup>43</sup> However, in a more general sense, Ag Data is a combination of various categories of information, such as personal data, farm data, aggregated data, transformed data, and public data.<sup>44</sup> Personal data is information that defines the farmer, such as their name and address.<sup>45</sup> Farm data is information collected on a farmer's farm by sensors or manually by the farmer as it is entered into the analytics systems.<sup>46</sup> Aggregated data, which will be discussed in more depth below, is essentially a collection of data

---

40. See Ferrell, *supra* note 9.

41. *Data silo* is a term used to refer to a private server used to store Ag Data generated on the farm's network. Data silos may be located on-site at a farm, or at another location of the farmer's choice.

42. Todd Janzen, *International Organization Releases Guidelines for Ag Data Research*, Janzen Ag Law (Feb. 21, 2019), <http://www.aglaw.us/janzenaglaw/2019/2/21/international-organization-releases-guidelines-for-ag-data-research>. Janzen, *supra* note 19 (explaining that blockchain is essentially a decentralized ledger capable of recording various transactions across various databases by creating a digital record that, in theory, is difficult to tamper with or hack); See UNITED STATES BMI AGRIBUSINESS REPORT, *supra* note 16.

43. See FARMERS BUSINESS NETWORK, <https://www.fbn.com/page/show/privacy-policy> (last visited Mar. 3, 2019).

44. *Our Approach: What types of data are there?*, THE YIELD: TECHNOLOGY SOLUTIONS, <https://www.theyield.com/our-approach> (last visited Mar. 3, 2019).

45. *Id.*

46. *Id.*

from many farms and sources that are anonymized.<sup>47</sup> Transformed data is a collection of data that has been transformed via algorithms to produce a new set of data that is different from the original.<sup>48</sup> Lastly, public data is information which is publicly provided, such as that made available by government agencies.<sup>49</sup>

While each of these various categories of data may serve an independent purpose, Ag Data is typically most useful and valuable as some of these data categories are merged and combined into large quantities.<sup>50</sup> For this reason, every farmer would benefit from having access to the largest data set possible. For larger farms, the data collected from smaller farms fills in the *data gap*<sup>51</sup> and increases the accuracy of the data-derived projections they use to make production decisions on the marginal level. For small-scale farms, large farms provide a strong foundation from which the decision-making power of the small-scale farmer is enhanced by the derived insights of the data collected and combined from other farms. This combined data is often referred to as aggregated data.

To better understand the potential power of aggregated data, it is helpful to draw a distinction between what is often referred to as “small data” and “big data.” Small data consists of data collected from individual fields or farms<sup>52</sup> and is commonly thought of as historical production, geographic, and weather data that farmers have accrued over time by observing their operations.<sup>53</sup> Big data is essentially the aggregation of small data and is the result of the rapid growth and implementation of data collection and analytics technologies that have facilitated the collection and compression of massive amounts of production information.<sup>54</sup> The

---

47. *Id.*

48. *Id.*

49. *Id.*

50. *Technology Quarterly: The Future of Agriculture*, THE ECONOMIST, [www.economist.com/technology-quarterly/2016-06-09/factory-fresh](http://www.economist.com/technology-quarterly/2016-06-09/factory-fresh) (last visited Mar. 3, 2019).

51. “Data gap” refers to one farm’s lack of access to a certain set of data collected on another farm.

52. Ferrell, *supra* note 9.

53. Joseph Byrum, *Data as Agriculture’s New Currency: The Farmer’s Perspective*, AGFUNDER NEWS (May 15, 2017), [www.agfundernews.com/data-as-agricultures-new-currency-the-farmers-perspective.html/](http://www.agfundernews.com/data-as-agricultures-new-currency-the-farmers-perspective.html/) (“Historical geographical data typically includes farm maps, land elevation and contour maps, historic weather and rainfall tables, soil maps, historic episodes of pathogens, pests, and disease. Production data includes soil classification maps, chemical grids, historic per-acre chemical and fertilizer application, historic crop and variety use, and harvest monitor information and yield performance.”).

54. Ferrell, *supra* note 9.

value of data is best recognized in big data as it provides the most powerful insights and is capable of being used in various types of artificial intelligence.

However, Ag Data must possess four traits in order to receive a big data classification. Big data must first have *volume* meaning that the amount of data is so large that it cannot be stored on one physical volume, such as a hard drive.<sup>55</sup> Next, the data must come at higher rates than it can be handled by a single computer giving it *velocity*.<sup>56</sup> Big data must also originate from a broad array of sources, such as sensors, software, or manual entries of small data providing a *variety* characteristics.<sup>57</sup> Lastly, big data must have *veracity* meaning that data analytics are required to consider the accuracy and credibility of the data, especially when considering the *variety* factor mentioned above and the potential for miscalibration of automated data collection systems or user error and bias coming from manually entered data.<sup>58</sup>

While the utilization of small data can be helpful to farmers, it does not possess the predictive power of big data. The power derived from the aggregation of data will enable farmers to do things such as detect trends in seed variety and chemical performance on individual crops in certain regions or conduct a comparative economic analysis of various production practices used by other farmers growing the same crop in similar environmental conditions.<sup>59</sup> In fact, companies such as Farmers Business Network have established their position in the market for analytics services by essentially creating a digital co-op in which farmers can share their data with one another and purchase production inputs that are optimal for their particular region and growing conditions.<sup>60</sup>

As Farmers Business Network has evidenced, it is likely that a service market for data collection and analytics will continue to emerge before farmers widely adopt and implement data collection technologies on their own farms. But if widespread adoption of the data collection technologies and storage devices among individual producers is ever to take place, the traditionally high barriers of entry into data collecting

---

55. Keith Coble et al., *Advancing U.S. Agricultural Competitiveness with Big Data and Agricultural Economic Market Information, Analysis, and Research*, COUNCIL ON FOOD, AGRICULTURAL AND RESOURCE ECONOMICS (2016), <https://www.mssoy.org/uploads/files/big-data-cfare-nov-2016.pdf>.

56. *Id.*

57. *Id.*

58. *Id.*

59. *Id.*

60. See FARMERS BUSINESS NETWORK, <https://www.fbn.com/analytics> (last visited Mar. 3, 2019).

practices must be lowered.<sup>61</sup> While the cost of traditional and modern data collection technologies remains relatively high due to a lack of competition in the marketplace, costs could be decreased with tax incentives or subsidies for developers of the technologies. By doing so, the government could create an environment in which every farmer could afford the technology and have an equal opportunity to reach their maximum production potential.

#### *D. The Anticipated Value of Ag Data and Analytics*

By 2025, the global precision agriculture industry is projected to be worth nearly \$10 billion.<sup>62</sup> In the United States alone, the precision agriculture market is expected to reach nearly \$7.8 billion by 2025 with roughly \$4.3 billion of the value deriving from field mapping and yield monitoring technologies, \$5.4 billion in sensing and monitoring devices, \$1.7 billion in maintenance services, and \$1.2 billion in consulting services.<sup>63</sup> Companies have been advised to focus on field mapping and monitoring technologies as they are predicted to be the strongest catalyst for initial growth.<sup>64</sup>

Accordingly, companies with longstanding connections to agriculture, such as John Deere, DowDuPont, and Bayer, are adjusting their respective business models from their traditional sales in machinery, seeds, and chemicals towards the development of farm management systems that will collect and crunch data before sharing it to the cloud.<sup>65</sup> There has also been a sharp increase in ag tech start-ups with the same goals as the aforementioned companies; however, many of these start-ups are working to provide new types of technology capable of facilitating a fully autonomous farm management system.<sup>66</sup> These information systems

---

61. See TERALYTIC, <https://teralytic.com/pre-order.html> (last visited Mar. 3, 2019). Farmers can lease soil probes for \$500 per probe for a year, or pay \$5,000 per year for ten probes.

62. *Precision Farming Market Worth \$10.23 Billion By 2025 CAGR:14.2%*, GRAND VIEW RESEARCH (July 2017), [www.grandviewresearch.com/press-release/global-precision-farming-market](http://www.grandviewresearch.com/press-release/global-precision-farming-market).

63. *Precision Farming Market Worth Will Reach US\$4.2Bn By 2025 According To Market Forecast*, MARKET WATCH (Aug. 30, 2018, 2:59 AM), [www.marketwatch.com/press-release/precision-farming-market-worth-will-reach-us-43bn-by-2025-according-to-market-forecast-2018-08-30](http://www.marketwatch.com/press-release/precision-farming-market-worth-will-reach-us-43bn-by-2025-according-to-market-forecast-2018-08-30). As of May 10, 2020, this website is under construction and availability of URL may be affected.

64. *Id.*

65. *Technology Quarterly: The Future of Agriculture*, *supra* note 50.

66. Many of these ag tech start-ups utilize various ag tech accelerators and incubator investment vehicles to fund their ideas. See Theresa Kern, *11 Of The Best*

boost the marketing power of large companies by providing detailed information of each farmer's individual production methods, growing conditions, and financial price points. These capabilities will enable large companies to make precise product recommendations by engaging in "laser marketing,"<sup>67</sup> but they also create the environment for potential collusion and antitrust issues such as price fixing and product tying. These issues could be addressed with antitrust regulations as was evidenced recently in Germany;<sup>68</sup> however, for the purposes of this Comment, only a legislative action pertaining to Ag Data ownership will be discussed.

### *E. Ag Data's Benefits, Burdens, and Sources of Mistrust*

Just as any other tool in the toolshed, technology is neither inherently good or evil as it can be used for either benevolent purposes, or it can facilitate malicious activity. Ag Data certainly has many potential benefits for everyone along the agriculture supply chain. Most directly, Ag Data will increase farmers' management capabilities by enabling them to measure things that were previously unmeasurable by engaging in practices such as crop monitoring throughout growing season, diagnosing and addressing equipment issues in downtime before they manifest in the field, and the sharing of data with crop consultants to achieve optimal recommendations and prescriptions for troubled crops.<sup>69</sup> Indirectly, it can provide consumers with more information regarding the origins of agriculture products thereby increasing consumers' confidence in the quality of goods and their willingness to pay a premium for the goods.<sup>70</sup>

Conversely, potential burdens of Ag Data derive from the insufficient security of personally identifiable information (PII).<sup>71</sup> It is possible for hackers with sinister intentions to infiltrate servers and steal any information stored on a farmer's server or shared from it. Because of this, it is important for farmers to be mindful of the types of data they upload and share with others. Fortunately, Ag Data primarily consists of crop production and GIS information rather than information traditionally

---

*Agtech Incubators and Accelerators in North America*, AGTECH. CAREERS (Oct. 19, 2017), <https://agtech.careers/agtech-foodtech-accelerators-incubators-north-america/>.

67. *Technology Quarterly: The Future of Agriculture*, *supra* note 50.

68. *Bundeskartellamt prohibits Facebook from combining user data from different sources*, BUNDESKARTELLAMT: OFFENE MÄRKTE FAIRER WETTBEWERB (Feb. 7, 2019), [https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2019/07\\_02\\_2019\\_Facebook.html?nn=3591568](https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2019/07_02_2019_Facebook.html?nn=3591568).

69. Ferrell, *supra* note 9.

70. See Janzen, *supra* note 42. See also Manne, *supra* note 18.

71. Ferrell, *supra* note 9, at 3.

targeted in hacks, such as credit card information, addresses, and birthdays, that enable hackers to fabricate the identities of their victims.<sup>72</sup> However, if a more sophisticated cyber breach were to occur, it is theoretically possible that Ag Data could be a potential weapon for cyber terrorists to attack or spy on the United States. This could be done by manipulating data, effectively resulting in the misapplication of inputs of production, which could decrease outputs and have a negative effect on commodity and food prices. Alternatively, cyber terrorists could engage in similar tactics to affect various pest resistances to biotechnology and potentially lead to a pest management crisis.

Another threat perceived by many farmers is the disclosure of data by the party receiving it from the farmer, such as a consultant or other trusted entity.<sup>73</sup> Most consultants and companies address this in privacy policies, but farmers may have to enter into confidentiality agreements with individuals or companies if they want to ensure they have a legal means to prevent such disclosure.<sup>74</sup> Another scenario is the potential for an adverse party engaged in or contemplating civil or criminal litigation to persuade the data-receiving party to share a farmer's data even though they are under no legal obligation to do so.<sup>75</sup> However, these are among the least of farmers' worries regarding their Ag Data.

Among the more detrimental threats inherent to Ag Data is the possibility for the data collected on farms to be used for purposes unconceived by farmers when they sign on the dotted line at the equipment dealership or agree to the terms of a platform's user agreement.<sup>76</sup> Although it may not be apparent on its face, this behavior could conceivably result in the manipulation of commodity markets due to the ability of equipment and software manufacturers to continuously collect, store, and transfer various types of Ag Data to commodity brokers and large companies selling agricultural production inputs.

If, for example, a large supplier of production inputs wished to know a particular farmer's *price point*, they could negotiate with the equipment company, crop consultant, or any other data collector to arrange the purchase or transfer of the data necessary to better estimate a particular farmer's financials and in turn determine the highest price at which the company could charge the farmer for the product without decreasing the quantity of product sold. Because a farmer's demand for production inputs in the growing season is inelastic and there is a lack of

---

72. *Id.*

73. *Id.*

74. *Id.*

75. *Id.*

76. *See id.* at 4.

price competition in the market for inputs of production due to past corporate mergers,<sup>77</sup> the large company can effectively dictate the future of the farm operation by pricing its products to the precise point in which the farm can continue to operate but cease to grow, prosper, and accumulate equity.

Another example is that of the commodity broker. A commodity broker could use the purchased data to estimate a farmer's economic production data and make buying and selling decisions of agricultural commodities accordingly which would in turn affect the market price of the commodity. If left unchecked, brokers could refuse to pay the price for a bushel of grain that the farmer needs to exceed the farming operation's breakeven point, leading to high supply levels in commodity markets and leaving farmers in a situation in which the margins they operate on are diminished to the point a farmer may contemplate the feasibility of staying in business.

While the ethics of this market behavior are strikingly questionable and could arguably fit into some legally-prohibited practices, one could argue that these data collection practices could be considered *really good intelligence* and, as a result, not meet the elements of price manipulation by courts.<sup>78</sup> But others, such as Apple CEO Tim Cook, have criticized large technology companies for collecting data on their customers in the name of self-enrichment and hold the viewpoint that such data collection practices by large companies should be considered *surveillance* rather than *really good intelligence*.<sup>79</sup> As Tim Cook put it during one of his recent speeches endorsing Europe's new data protection law, "Our own information, from the everyday to the deeply personal, is being weaponized against us with military efficiency."<sup>80</sup>

### III. ANALYSIS

Similar to the realm of consumer data that Tim Cook was referring to, the very tools that farmers depend on to produce their crops are being weaponized against them as these tools facilitate the surveillance of farms

---

77. See Dana Varinsky, *The \$66 billion Bayer-Monsanto merger just got a major green light – but farmers are terrified*, BUSINESS INSIDER (May 29, 2018, 1:27 PM), <https://www.businessinsider.com/bayer-monsanto-merger-has-farmers-worried-2018-4>.

78. Ferrell, *supra* note 9 (discussing 17 C.F.R. § 180.1 (2015)).

79. Steve Kroft, *The Law That Lets Europeans Take Back Their Data From Big Tech Companies*, 60 MINUTES (Nov. 11, 2018), <https://www.cbsnews.com/news/gdpr-the-law-that-lets-europe-take-back-their-data-from-big-tech-companies-60-minutes/>.

80. *Id.*





doctrines could possibly serve as a source of protection for farmers' interests in Ag Data. However, although these doctrines may provide some degree of protection for farmers, they are not a practical means of protection.

### 1. Property Law as a Means of Ag Data Protection

An intuitive source of protection for data would naturally seem to be property law.<sup>84</sup> Property law consists of several fundamental property interests, such as the right to possess, use, enjoy, exclude, transfer, and consume or destroy.<sup>85</sup> However, because data is, in essence, nothing more than information, it is difficult to fit data ownership into some of these fundamental property interests.<sup>86</sup> For instance, because data is an intangible form of property, it is difficult for the party generating the data to exclude others from the data because it is possible for many people to *possess* the Ag Data without diminishing the useful value of the data to others.<sup>87</sup> Due to data's misfit in the fundamental interests of property law, the intellectual property framework serves as a more precise and suitable starting point in determining the ownership rights that farmers may have in the data collected on their farms.<sup>88</sup>

### 2. Intellectual Property as a Means of Ag Data Protection

Intellectual property law consists of four different categories including trademark, patent, copyright, and trade secret laws.<sup>89</sup> Trademark laws would fail to provide adequate protection for data because trademark pertains to intellectual property used for branding purposes rather than protecting information.<sup>90</sup> Patent law also fails to protect Ag Data because patent law protects *inventions*, and Ag Data does not qualify as an invention under the U.S. Patent Act.<sup>91</sup> law is also unlikely to answer the

---

84. Ferrell, *supra* note 9.

85. *See id.* (explaining that "possess" refers to occupying or holding property; "use" refers to interacting with, alerting, or manipulating the property; "enjoy" in this context refers to a property holder's ability to profit from the property; "exclude" means to exclude others from the property; "transfer" refers to the marketable potential of the property; and lastly, "consume" or "destroy" refers to the property owner's right to consume and destroy the property or things produced from the property).

86. *Id.*

87. *Id.*

88. *Id.*

89. *Id.* at 4.

90. *Id.* at 5.

91. *Id.* However, it is possible for a patentable invention to arise from the aggregation and analysis of Ag Data. *Id.*

ownership question due to the fact that raw data is not copyrightable because such data lacks the “creative component” required for copyright protections under the Federal Copyright Act.<sup>92</sup> In *Feist Publications Inc. v. Rural Telephone Service Company*, the United States Supreme Court addressed the question of whether a telephone directory was copyrightable and held that, because the telephone directory consisted of nothing more than raw data (telephone numbers) organized in the most practical and common method of organizing such data, the Copyright Act did not extend protection to such raw facts or data.<sup>93</sup> Ag Data is similar to telephone numbers because the agronomic information that makes up Ag Data is just that: information. Information itself does not possess any level of creativity until it is used in a creative manner and transformed into something different. In essence, this means that, although Ag Data is not copyrightable itself, Ag Data can lead to copyrightable works if enough “creative components” have been added to the facts or data.<sup>94</sup> For example, if a crop consultant writes a pest report and diagnosis recommendation based off data derived from a drone flight, the pest report and recommendation might be copyrightable if it is crafted creatively or transformed into an informative literary piece, but the data used to create the report and recommendation would not be.<sup>95</sup>

Of these four categories within intellectual property, the only other possibility would be trade secret framework; however, it is also imperfect.<sup>96</sup> Unlike trademark, patent, and copyright laws, trade secrets are a matter of state law and, as a result, lack uniformity.<sup>97</sup> The Uniform Trade Secret Act defines a “trade secret” as:

. . . information, including a formula, pattern, compilation, program, device, method, technique, or process, that:

---

92. *Id.*

93. *Feist Publ’n Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 349 (1991).

94. *See Ferrell, supra* note 9, at 5.

95. *Id.* at 6.

96. *Id.* at 5-6.

97. *Id.* at 6; Scott Wenner, *Massachusetts Law To Tightly Regulate Postemployment Covenants Not To Compete; Uniform Trade Secret Act Is Adopted*, MONDAQ (Aug. 20, 2018), <https://advance.lexis.com/document/?pdmfid=1000516&crd=9627a054-cd46-4a4e-bad9-2aff97ad8693&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A5T2Y-2H21-JCMN-Y16Y-00000-00&pddocid=urn%3AcontentItem%3A5T2Y-2H21-JCMN-Y16Y-00000-00&pdcontentcomponentid=299488&pdteaserkey=sr5&pditab=allpods&ecomp=byvLk&earg=sr5&prid=b35588a5-e462-4951-b2ef-407a52e1c63e&cbc=0>.

(i) derives independent economic value, actual or potential, from not being generally known to, and not readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure and use; and

(ii) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.<sup>98</sup>

This definition provides a sturdy framework from which a protective model for Ag Data can be built; however, it is by no means bulletproof. The definition makes clear that “information . . . patterns and compilations” can be protected as a trade secret.<sup>99</sup> Because data is information, this portion of the definition is certainly “a brick in the wall” in the establishment of a data protection framework; however, the two remaining portions of the definition require a bit more.

The first additional requirement necessary to meet the trade secret definition requires that the “information . . . patterns and compilations” have actual or potential economic value that derives from the fact that no other parties have access to such information.<sup>100</sup> For example, a farmer’s planting rates, plant health, harvest yields, and GIS locations of equipment paths in fields must have economic value due to the fact that such information is a secret.<sup>101</sup> The problem with this portion of the definition is that the economic value of such information actually derives from the farmer’s analysis of the information and the application of that analysis to his or her own operation.<sup>102</sup> In other words, the mere fact that the data exists does not give the data economic value; rather, it is the farmer’s analysis and application of the data derived insights to his or her operation that results in the economic benefit necessary to meet this portion of the trade secret definition. As a result, the value derived by one particular farm’s analysis and application of the data would have no economic value to someone who is not farming that particular farm.<sup>103</sup>

For these reasons, the trade secret framework fails to mesh with the fundamental nature and ultimate purpose of data. Because data becomes more powerful and, consequently, valuable as the quantity of a specific type of useful data increases, a law that disincentivizes the free

---

98. Ferrell, *supra* note 9, at 6 (discussing Uniform Trade Secret Act, § 1).  
Roger M. Milgrim & Eric E. Bensen, 1 MILGRIM ON TRADE SECRETS § 1.01, PART 1 OF 3 (Matthew Bender & Co. Release No. 119 2018).

99. Ferrell, *supra* note 9, at 6 (discussing the Uniform Trade Secret Act, § 1).

100. *Id.*

101. *Id.*

102. *Id.*

103. *Id.*

and fair exchange of such information is counterproductive to the underlying goal of protecting data ownership for the overarching purpose of commoditizing it. If farmers are incentivized to keep their data a secret in an attempt to protect the privacy and ownership of their Ag Data, then the power of the data derived insights will fail to reach its full potential because farmers' data sets will remain limited. Ideally, farmers should be able to share such information with one another so that they each have a more potent and powerful data set from which to make decisions for their operations. All of these issues pose a question that trade secret law has yet to provide a clear answer to: Can one can have trade secret protection in information that standing alone has no economic value to other parties but does have such value when aggregated with similar data from other parties?<sup>104</sup>

As if the first requirement of the trade secret definition was not enough to illuminate the weaknesses in the trade secret framework as means of protection for Ag Data, another potential area of concern lies within the second requirement of the trade secret definition. The second requirement states that the data must be subject to reasonable efforts to maintain its secrecy.<sup>105</sup> This is problematic in an industry such as agriculture in which the data is continuously uploaded to another party without the intervention of the disclosing party.<sup>106</sup> The fact that data is disclosed to another party does not mean that it cannot be protected under the trade secret framework; rather, it is meant to address the question of how and to whom the information is disclosed.<sup>107</sup> It is generally accepted law that the owner of the data need not go to "extraordinary lengths" to maintain secrecy of their data. Instead, all that is needed is for the owner to take "reasonable steps" to maintain its secrecy.<sup>108</sup>

This then begs the question of what is considered to be a "reasonable step." More likely than not, a reasonable step will require some form of an agreement between the disclosing party and the receiving party regarding how the receiving party must treat the information and to whom they may disclose the information.<sup>109</sup> This could be done with non-disclosure agreements between farmers and large companies; however, the problem with this requirement, as well as most any contracting method as a means of Ag Data protection, lies within its practicality.

---

104. *Id.*

105. *Id.*

106. *Id.*

107. *Id.*

108. *Id.*

109. *Id.*

### 3. Contract Law as a Means of Ag Data Protection

Among the many benefits of contract law that could be listed, the principle of *freedom of contract* is certainly at the top of the list. The ability of parties to freely enter into legally enforceable agreements plays a vital role in enabling society to reach higher levels of efficiency and productivity. However, this fundamental principle assumes that the parties entering into the contract have a *meeting of the minds* and are doing so at *arms-length*. Because contract law is a matter of state law, the answer to the question of whether or not there was a meeting of the minds and whether the parties were dealing at arms-length will be subject to varying interpretations depending on the court in which the case is heard. Unfortunately, this reality leads to uncertainty for farmers who might otherwise wish to protect their Ag Data. Accordingly, the contract framework is simply an impractical means of protection for Ag Data because the cost of hiring an attorney is high; there are no guaranties that challenging a contractual provision will be successful; and educated farmers typically lack the general understanding of the relevance and potential of Ag Data that may motivate them to pursue such action.

However, if a farmer were to challenge a contractual provision, the farmer's attorney would likely have to depend on the doctrine of unconscionability to contest the formation of contractual provisions pertaining to Ag Data. For the provision to be unenforceable under the unconscionability doctrine, the provision would typically have to be procedurally and substantively unconscionable when it was made.<sup>110</sup> The inquiry into procedural unconscionability typically requires an examination of the contract formation process and the alleged lack of meaningful choice, which often entails consideration to the size and commercial setting of the transaction, whether deceptive or high-pressured tactics were employed, the use of fine print in the contract, the experience and education of the party claiming unconscionability, and whether there is disparity in bargaining power.<sup>111</sup> To determine whether or not procedural unconscionability exists, one must understand the context and customs surrounding a typical farm equipment transaction.

When a farmer needs a piece of equipment, such as a tractor, he will usually call his local dealership and tell the sales agent what he needs.<sup>112</sup> The sales agent will draw up a standardized sale, rent, or lease

---

110. *Mandel v. Liebman*, 303 N.Y. 88, 94 (App. Div. 1951).

111. *Gillman v. Chase Manhattan Bank, N.A.*, 73 N.Y.2d 1, 10-11, (App. Div. 1988).

112. While writing this Comment, I interviewed farmers in Arkansas and Mississippi to gather information regarding the process in which farmers obtain their

contract that the farmer will sign after reading the essential terms, such as price, payment details, equipment model, hours of operation, and so on. While the farmer is at the dealership signing the papers, it is not typical for the sales agent to mention anything regarding the Ag Data collected by the machine's computer, even though they sell or attempt to sell the computer to the farmer with the tractor.

In fact, after interviewing farmers who had recently purchased tractors, cotton pickers, and combines from local equipment dealerships such as John Deere and Case iH, I discovered that none of the sales agents were able to provide adequate information regarding what is done with the Ag Data collected by the machine, nor were the sales agents able to make any concessions on terms of the contract pertaining to Ag Data when farmers would attempt to negotiate. In fact, John Deere referred one farmer to the company's Data Services & Subscriptions Statement, in which the company explicitly leaves no room for negotiation:

By accessing or using any John Deere Data Services and Subscriptions, you agree that we may collect and process your personal information as described in our Privacy Policy, and you agree that we may use your data as described below and in the applicable terms of use. If you do not or cannot agree to these uses by John Deere, then you should not use John Deere Data Services and Subscriptions.<sup>113</sup>

This leaves the farmer in a “take it or leave it” situation in which he or she is essentially forced to accept the term not only because he desperately needs the piece of equipment, but also because the farmer may not have the luxury of time that could be needed to negotiate such a term due to the fact that farmers operate under the mercy of mother nature and timing is a critical factor to the success of farming operations.

These sales procedures may slightly vary from dealership to dealership just as a court's application of the unconscionability doctrine to a set of facts may vary. However, it is easy to see how a procedural unconscionability argument could be made. First, there is, to some degree, a lack of choice for farmers needing to purchase equipment as there are

---

equipment. I spoke to one farmer who had recently purchased a John Deere cotton picker and Case iH tractor. I spoke with another who had recently purchased a Case iH combine. None of the farmers had been informed of the machines' ability to collect or transfer data by the sales agents although the sales agents made efforts to sell the data collection technology with the machines.

113. *John Deere Data Services & Subscriptions Statement*, JOHN DEERE, <https://www.deere.com/en/privacy-and-data/data-services/> (last visited Mar. 3, 2019).

only a few equipment manufacturers capable of supplying the farmer's demand. Next, there is disparity in bargaining power not only because of the lack of choice but also because many of the farmer's existing infrastructure requires a product that only these few equipment companies can provide.<sup>114</sup> Third, the sales practices used by these equipment companies are arguably deceptive as they often engage in small talk with the farmer as he or she is signing papers rather than informing the farmer on certain terms within the agreement that the farmer may not otherwise have a reason to know about. Lastly, farmers do not have the expertise to sift through a long contract and draw the necessary conclusions regarding Ag Data because, as often is the case, the farmers are unaware of the relevance and potential value of Ag Data.

While each of these things illustrate how an Ag Data provision in a sales contract for a piece of equipment may be procedurally unconscionable, it would also be likely that a farmer's attorney would need to prove substantive unconscionability as well. However, there have been circumstances in which courts held a contract unenforceable on the grounds of substantive unconscionability alone when a provision of the contract is so outrageous that it warrants doing so.<sup>115</sup> Substantive unconscionability is often proved by determining whether the terms of the contract are unreasonably favorable to the party against whom unconscionability is argued.<sup>116</sup>

Here, it is obvious that the contract provides more benefit to the equipment company given that they are able to profit from the farmer's data without truly getting farmers' consent. However, the argument could also be made that the equipment company is providing the farmers with a valuable product that also provides economic value to their operation even though the farmer is not able to sell their Ag Data as a commodity. The fact that these two arguments can be made only bolsters the point that the contracting method would lead to uncertainty for farmers if they were to attempt to litigate the issue. Ultimately, it is likely that this uncertainty will be a risk that very few farmers would be willing to take, and as a

---

114. For example, many farmers have had to switch to round-bale cotton pickers due to the recent shifts from traditional square bales. Also, farmers purchasing a John Deere cotton picker cannot use another company's yield monitor on the cotton picker they purchase; so, if the farmer wishes to collect Ag Data on their cotton harvests, they are effectively forced to purchase the John Deere computer to do so even though the farmer will pay nearly \$865,000 for the cotton picker. Because John Deere is the only company currently producing cotton pickers, farmers have no choice in the market other than John Deere. However, Case IH is planning to release a new cotton picker in 2020, providing farmers with one additional option in the near future.

115. *Gillman*, 73 N.Y.2d at 12.

116. *Id.*



result, the contracting method is an impractical means of Ag Data protection as it fails to protect the interests of a majority of American farmers.

### *B. Practical Guidance from Similar Legislation and Regulations*

One strong argument against the intellectual property and contracting approaches to protecting data is the lack of uniformity that these legal frameworks would provide to individuals, consumers, and farmers in America due to different interpretations of doctrinal law in different states. A similar lack of uniformity was evident in Europe as individual states within the European Union (“EU”) began to implement various rules and principles meant to protect personal data and the fundamental human right of privacy.<sup>117</sup>

#### 1. The European Approach

In Europe, the debate over data collection consisted of two opposing viewpoints: individual data ownership versus no individual data ownership.<sup>118</sup> The former position found wide support in consumers and those who believe in the *fundamental right to private life*, while the latter proposition was set forth by those representing the interests of large tech companies.<sup>119</sup> Many of the large tech companies believe that data ownership should be a matter of basic contract law, as previously discussed, likely due to the legal ambiguity it would lead to, but those opposed to the contracting method argue that the contracts used by large companies in dealing with consumers are in large part unconscionable and lack proper formation.<sup>120</sup>

Accordingly, the first organized effort to provide a means of protecting personal data was undertaken by the Organization for Economic Co-operation and Development (OECD) in the 1970s and 1980s, around which time the organization published its “Guidelines on the Protection of Privacy and Transborder Flows of Personal Data.”<sup>121</sup> These guidelines served as a foundation for many national laws regarding data privacy and was endorsed by the EU and the United States.<sup>122</sup> The

---

117. *How did we get here?*, EU GDPR.ORG, <https://eugdpr.org/the-process/how-did-we-get-here/> (last visited Mar. 3, 2019). As of May 10, 2020, this website is under construction and availability of URL may be affected.

118. *Id.*

119. Kroft, *supra* note 79.

120. *See id.*

121. *Id.*

122. *Id.*

guidelines proposed eight principles which were to be followed by tech companies when processing personal data.<sup>123</sup> However, because the rules and principles were non-binding and the levels of data protection varied greatly among the member EU states, the effort failed to reach the level of uniformity that was needed to provide adequate protection for the data of all individuals in the EU.<sup>124</sup>

In the realm of American agriculture, a very similar course of action was taken by the American Farm Bureau Federation in 2014 in which ag tech providers and industry groups met to draft the Privacy and Security Principles for Farm Data which is now commonly known as “Ag Data’s Core Principles.”<sup>125</sup> Although adoption of the Core Principles was a great first step, it is merely an adoption of a pledge “to do the right thing” and not a binding legal document providing uniform and

---

123. *Id.* The first principle was the “collection limitation principle” which suggests that “there should be limits to the collection of personal data, data should be obtained by lawful and fair means, and where appropriate, with the knowledge or consent of the data subject.” *Id.* The “data quantity principle” requires “personal data to be relevant to the purpose for which it is to be used, and, to the extent necessary for those purposes, should be accurate, complete, and kept up-to-date.” *Id.* The “purpose specification principle” states that “the purpose for the collection of data should be specified at the time of collection and data should not be used for anything other than its original intention without again notifying the data subject.” *Id.* The “use limitation principle” requires that “personal data should not be used for purposes outside of the originally intended and specified purpose, except with the consent of the data subject or the authority of the law.” *Id.* The “security safeguards principle” provides that “personal data should be protected by reasonable security safeguards against such risks as loss or unauthorized access, destruction, use, modification, or disclosure of data.” *Id.* The “openness principle” suggests “there should be a general policy of openness about developments, practices, and policies with respect to personal data and individuals should have easy access to information about their personal data, who is holding it, and what they are using it for.” *Id.* The “individual participation principle” promotes “the right of the individual to know if a controller has information about him or her and have access to that data in an intelligible form for a charge, if any, that is not excessive. *Id.* Additionally, an individual should have the right to challenge a controller for refusing to grant an individual access to his or her data, as well as challenging the accuracy of the data. *Id.* If the data is found to be inaccurate, then the data should be erased or rectified.” *Id.* The last principle in the guideline is the “accountability principle.” *Id.* This principle holds data controllers accountable for complying with each of the previously mentioned principles. *Id.*

124. *Id.*

125. Janzen, *supra* note 42. Farmers can use resources such as the “AG Data Transparency Evaluator” (“ADTE”) to determine if the company that they are working with aligns with the Core Principles. *Id.* ADTE is an online resource created to help farmers take into account the concerns over data ownership in agriculture. *Id.* Ivanov Igor, *How to Approach Data Ownership in AgTech?*, MEDIUM (Jan. 15, 2018), <https://medium.com/remote-sensing-in-agriculture/how-to-approach-data-ownership-in-agtech-486179dc9377>.

unambiguous protection, much like the principles set out in the OECD guideline. As was the case with the OECD guidelines, it is extremely unlikely that the Core Principles will provide a uniform source of protection for Ag Data. Rather, as the Europeans have realized, it typically requires a uniform, national law.

Because the OECD guidelines lacked uniformity, the EU subsequently adopted the Data Protection Directive 95/46/EC of 24 October 1995 (“Directive 95/46/EC”).<sup>126</sup> Directive 94/46/EC was meant to harmonize data laws among members of the EU while staying true to the original guidelines previously published by the OECD.<sup>127</sup> Although Directive 94/46/EC provided some degree of harmonization, the fact that it was a mere “directive” meant that there was still some room for interpretation during the transposition into individual national law.<sup>128</sup> Because there was still some room for interpretation under Directive 94/46/EC, European lawmakers knew that a broad piece of legislation would be required to achieve the intended goals of the OECD guideline.<sup>129</sup> Specifically, European lawmakers needed a regulation instead of a directive so that the law would be enforceable in all member states and for anyone with EU data subjects.<sup>130</sup>

Accordingly, the EU began enforcing the General Data Protection Regulation (“GDPR”) on May 25, 2018.<sup>131</sup> The GDPR placed new, uniform restrictions and requirements on tech companies that collect personal information on their customers, effectively leveling the playing field between individuals and large companies while also protecting the sanctity of the individual’s natural right of privacy. The GDPR is meant to protect all EU citizens from privacy and data breaches by uniformly upholding the key principles of data privacy that were established in the OECD guidelines and Directive 94/46/EC.<sup>132</sup> The GDPR clearly articulates six fundamental rights of data privacy which individuals within the EU are now entitled under GDPR.<sup>133</sup>

(i) *Breach notification* requires companies to provide breach notifications in all member states of the EU in which a data breach is

---

126. *How did we get here?*, *supra* note 117.

127. *Id.*

128. *Id.*

129. *Id.*

130. *Id.*

131. *Id.*

132. *Id.*

133. *GDPR Key Changes*, EU GDPR.ORG, <https://eugdpr.org/the-regulation/> (last visited Mar. 3, 2019). As of May 10, 2020, this website is under construction and availability of URL may be affected.

likely to “result in a risk for the rights and freedoms of individuals.”<sup>134</sup> The notification must be given within 72 hours of the company becoming aware of the data breach. In addition, data processors must notify their customers and the controllers “without undue delay” after first becoming aware of a data breach.<sup>135</sup>

(ii) *Right to access* provides individuals with the right to know whether or not companies are processing their personal data, and if the company is engaging in such behavior, the individual has the right to know what information about them is being collected and the company’s purpose for such collection.<sup>136</sup> This also requires companies to provide an electronic copy of all personal information it has on an individual, free of charge, at the request of the individual.<sup>137</sup>

(iii) *Right to be forgotten* entitles individuals to have the data controller erase the individual’s personal data, cease dissemination of the data, and potentially have third parties halt processing the data.<sup>138</sup> Typically, this will either require the individual to withdraw their consent or requires that the data no longer be relevant to the original purposes for which it was being processed.<sup>139</sup> However, this right does allow controllers to balance the individual’s rights in their information against the “public interest in the availability of the data” when considering an individual’s request “to be forgotten.”<sup>140</sup>

(iv) *Data portability* gives the individual the right to receive personal data concerning them.<sup>141</sup>

(v) *Privacy by design* requires the inclusion of data protection from the onset of the designing of systems, rather than as a modification to the system later on.<sup>142</sup> More specifically, this requires the party in control of the data to “implement appropriate technical and organizational measures . . . in an effective way . . . in order to meet the requirements of this [r]egulation and protect the rights of data subjects.”<sup>143</sup> In effect, this encourages parties in control of the data to only hold and process the amount of data that is absolutely necessary to the completion of their duties.<sup>144</sup>

---

134. *Id.*

135. *Id.*

136. *See id.*

137. *Id.*

138. *Id.*

139. *Id.*

140. *Id.*

141. *Id.*

142. *Id.*

143. *Id.*

144. *Id.*

The underlying purpose of the GDPR, uniformity, was achieved by extending the jurisdiction across the entire EU, and accordingly, the law now applies to all companies processing the personal data of individuals and consumers residing in the EU, regardless of the company's location.<sup>145</sup> In other words, it does not matter where the data processing takes place. If the data affects a person living within the EU, then the GDPR applies to the company engaging in such behavior. The GDPR's extension of jurisdiction resolved much of the ambiguity regarding the territorial applicability that existed under Directive 94/46/EC.<sup>146</sup>

The GDPR also strengthened the conditions for consent, as companies are no longer able to use long, unintelligible terms and conditions full of legalese.<sup>147</sup> The company's request for consent must be presented in an intelligible and accessible form in which the purpose for the company's collection of the data is also clearly disclosed.<sup>148</sup> The individual's consent must be provided in intelligible and accessible form, be distinguishable from other matters, and in clear and plain language.<sup>149</sup> It must also be as easy for the individual to withdraw their consent as it is to give it.<sup>150</sup>

In addition to the uniformity and tighter rules on consent, the GDPR created a framework in which fines may be imposed on companies that break the law.<sup>151</sup> Fines can be imposed on both controllers and processors of data meaning that "clouds" are not exempt from GDPR enforcement.<sup>152</sup> The fines can be as much as 4% of annual global revenues or twenty million Euros, whichever is greater.<sup>153</sup> There is a tiered approach to fines with maximum penalties typically imposed on companies committing the most serious infringement of the law, such as not having sufficient customer consent to process data or any violation of the privacy by design concepts, while minor fines are imposed on companies that fail to do things such as keeping their records in order or failing to notify the supervising authority and data subject about a breach.<sup>154</sup>

---

145. *Id.*

146. *Id.*

147. *Id.*

148. *Id.*

149. *Id.*

150. *Id.*

151. *Id.*

152. *Id.*

153. *See id.*

154. *Id.*

Lastly, the GDPR eliminated the traditional practice of submitting notifications to each local Data Protection Agency (“DPA”) regarding companies’ data processing activities and notification requirements for transferring data based on Model Contract Clauses.<sup>155</sup> Rather, there are now internal record keeping requirements which require a mandatory Data Protection Officer to be appointed to tech companies whose core activities consist of operations which require regular and systematic monitoring of personal data on a large scale, data that falls within a special category, or data relating to criminal convictions or other offenses.<sup>156</sup>

While the GDPR seems to have achieved its goal of increasing the uniformity of protection for personal data for all citizens in the EU, some argue that the law still leaves a lot up to interpretation. For example, the GDPR requires companies to provide a “reasonable” level of protection for personal data, but the law does not define what constitutes “reasonable.”<sup>157</sup> This illustrates that, although the conversation about data protection has been around for years, no one country has been able to find the perfect fit for data protection in a legal framework. Nonetheless, the GDPR is a strong stride in the right direction; although, the law is still in its infancy and has yet to be fully tested. It is easy to see how the GDPR could certainly be of assistance in drafting a federal solution to the Ag Data ownership question in America. However, GDPR is not a one size fits all approach by any means. The protection of Ag Data in America will require tailoring a law to the specific needs and unique attributes of the American agricultural industry.

## 2. American Data Protection Laws

There is no single, comprehensive law regulating the collection and use of personal data in America.<sup>158</sup> Rather, data laws in the United

---

155. *Id.*

156. *Id.* The Data Protection Officer: (i) must be appointed on the basis of professional qualities and expert knowledge of data protection laws and practices; (ii) may be a staff member or an external service provider; (iii) contact details must be provided to the relevant DPA; (iv) must be provided with appropriate resources to carry out their tasks and maintain their expert knowledge; (v) must report directly to the highest level of management; and lastly, (vi) must not carry out any other task that could result in a conflict of interest. *Id.*

157. Michael Nadeau, *General Data Protection Regulation (GDPR): What you need to know to stay compliant*, CSO (April 23, 2018 10:07AM PT) <https://www.csoonline.com/article/3202771/data-protection/general-data-protection-regulation-gdpr-requirements-deadlines-and-facts.html>.

158. Ieuan Jolly, *Data Protection in the United States: overview*, LOEB & LOEB (Oct. 1, 2018) <https://uk.practicallaw.thomsonreuters.com/6-502->

States are a patchwork system of federal and state laws that can sometimes overlap and contradict one another.<sup>159</sup> In addition to both federal and state laws, there are also self-regulatory frameworks developed by governmental agencies and industry groups that do not have the force of law but do provide some degree of accountability and enforcement.<sup>160</sup>

While an array of federal privacy laws exists, most of the laws only apply to a particular category of information, such as electronic communication, health, and financial information.<sup>161</sup> At the state level, more and more legislatures are beginning to enact laws pertaining to the general collection and use of data due to the lag and lack of federal legislation.<sup>162</sup> However, in the areas in which state and federal laws cover the same topic, federal law preempts privacy laws of the states.<sup>163</sup>

Nonetheless, states such as California have taken the reigns by being the first state to implement a security breach notification law similar to the one in the GDPR.<sup>164</sup> California also passed a law that will change the definition of “personal information” to include things such as usernames and email addresses.<sup>165</sup> Most notable, however, is California’s new law coined the California Consumer Privacy Act of 2018 (“CCPA”). The CCPA is the most sweeping of all privacy laws in the United States as it provides consumers with new rights, such as the right to require the deletion of their data, the right to request disclosures of information about how the information is collected and shared, and the right to instruct a company not to sell their data.<sup>166</sup> Additionally, there was talk of a private right of action for individuals to pursue violators of the CCPA which could lead to significant class action lawsuits in California. However, California lawmakers blocked efforts to pass such measures in May of 2019. It is expected that this particular aspect of the law will continue to be heavily debated and subject to amendment before the CCPA is implemented in 2020.<sup>167</sup>

While none of these laws specifically apply to Ag Data, there are some common rules and principles that tend to surface among the various

---

[0467?transitionType=Default&contextData=\(sc.Default\)&firstPage=true&comp=pluk&bhcp=1.](#)

159. *Id.*

160. *Id.*

161. *Id.*

162. *Id.*

163. *Id.*

164. *See id.*

165. *Id.*

166. *Id.*

167. *Id.*

bodies of law pertaining to data in America that can help in constructing a law for Ag Data. Among them are:

- (i) the requirement that anyone collecting data obtain consent from the party from which they are collecting such information,
- (ii) provide clear and unambiguous notice to the data subject that information is being collected on them,
- (iii) extend rights to data subjects giving them control over the collection, use, storage, and transfer of the information that a processor may have on them (opt-in, opt-out),
- (iv) allow data subjects to edit information collected on them,
- (v) provide security for data (whether by design or retrospectively),
- (vi) requirement that processor give timely notification to data subject of a breach involving their data,
- (vii) the imposition of a tiered system of fines ranging from heavy to minor depending on the type of infringement,
- (viii) allow transfers of data only after a conscionable agreement between the data subject and collecting party has been reached,
- (ix) no requirement to verify a transfer agreement with a national regulator, industry specific regulatory agency.<sup>168</sup>

### C. *A Legislative Blueprint for Ag Data Protection*

Ultimately, there are two avenues available to protect Ag Data: antitrust laws and legislative regulation. This Comment will focus on the latter as it seems to be the approach currently taking root across the world considering the EU has taken this approach, and California will be the first state in the union to import a law similar to the EU's GDPR.<sup>169</sup>

The need for a uniform law in certain aspects of a nationwide industry such as agriculture<sup>170</sup> combined with the lessons that can be learned from the European approach make it clear that any legislative action pertaining to Ag Data should manifest itself at the federal level rather than the state level. Further, a law protecting Ag Data would likely

---

168. *See id.*

169. Etelka Lehoczky, *California is Bringing E.U. – Style Privacy Laws to the U.S. Here's What You Need to Know*, INC. (Jan. 2019) <https://www.inc.com/magazine/201902/etelka-lehoczky/california-privacy-law-gdpr-compliance-customer-data-rights.html>.

170. Some areas within the agricultural industry are better managed at the state level. For instance, pest eradication policies are typically best left to states as the issues are typically more local in nature and require a localized solution. Conversely, Ag Data is international in nature, as it is not subject to physical and geographic constraints as pests are, rather, Ag Data can be shared across jurisdictional borders in a split second.



be best placed in the Farm Bill as the purpose of the Farm Bill is to incentivize agricultural production and provide protection to farm operations.<sup>171</sup> Accordingly, a law protecting Ag Data would be central to the core purpose of the Farm Bill as it would help farmers maintain the ability to build equity in their operations while providing a sustainable food supply at the best possible price for the consumer.

Economically speaking, there are circumstances in which the free market does a poor job correcting market failures on its own, and government intervention is required to reach levels of efficiency.<sup>172</sup> Due in part to the lack of well-defined property rights in Ag Data and farmers' lack of information regarding its relevance and value, a market failure exists as farmers lack the ability to make economically optimal decisions.<sup>173</sup> This gray area surrounding property rights in Ag Data is a negative externality in the market that could be internalized by giving farmers well-defined property rights as well as by giving tax incentives or subsidies to ag tech developers while imposing fines on companies that break the law.<sup>174</sup> This internalization could be achieved if Congress were to pass a law regulating the collection, use, storage, and transfer of Ag Data as it could minimize the market distortion resulting from the market failure created by the lack of clearly defined property rights in Ag Data.

In order to do so, any federal law regulating the collection, use, and distribution of Ag Data should hold ag tech companies morally responsible. Just as agricultural equipment companies have never had the right to a farmers' crop by hiding provisions in their sales contracts, neither should sales contracts for new equipment allow these large companies to secretly collect, store, and transfer farmers' Ag Data without the farmers' full comprehension and consent. However, the law should strive to reach the economically optimal balance between the farmer's individual right to the information collected on his or her farm with the benefits that come with the research and development that large companies provide to the agricultural industry through innovation.<sup>175</sup> In other words, the law should not have the effect of deterring large companies from researching and developing new products capable of collecting and analyzing Ag Data, but it should provide farmers with substantial property interests in the Ag Data. This is essentially the same as it has always been: Farmers pay a price reflecting the fair market value

---

171. *Farm Bill: A Short History and Summary*, FARM POLICY FACTS, <https://www.farmpolicyfacts.org/farm-policy-history/> (last visited Mar. 3, 2019).

172. See WILLIAM J. BAUMOL & ALAN S. BLINDER, *ECONOMICS: PRINCIPLES & POLICY* 313, 321 (Michael Worls et al. eds., 12th ed. 2012).

173. *Id.* at 318.

174. *Id.* at 313; *id.* at 322.

175. *Id.* at 321-22.

for a piece of equipment in exchange for the complete right to use the equipment as he or she wishes. The fact that the equipment company manufactured the equipment does not give the company any rights to the output the farmer generates with the equipment. Ideally, a market for data could be created in which the “invisible hand” could determine the fair market value of the farmer’s data, enabling the farmer to sell the specific types of data to companies at an appropriate price determined by the market.

In order for these desired effects to be achieved, the law will require an adequate definition of Ag Data. Some ag tech firms have defined Ag Data in their privacy policies as:

any agricultural data, as broadly understood in the agricultural industry, including, but not limited to, [farmer’s] agronomic data, application data, climate data, harvest data, invoice data, planting data, land data, machine data, pricing data, weather data, and the type of agricultural products or services [farmers] use and purchase from us or other parties.<sup>176</sup>

A definition that consists of this language would provide a strong foundation from which legislators could build upon when drafting a law protecting the collection, use, and distribution of Ag Data. In addition to an adequate definition, legislators would also need to include the following principles:<sup>177</sup>

---

176 .See FARMERS BUSINESS NETWORK, <https://www.fbn.com/page/show/privacy-policy> (last visited Mar. 3, 2019).

177. Legislators may also consider referencing the guiding principles set forth by the Consulting Group for International Agricultural Research (“CGIAR”) which are intended to promote open data use for agricultural research. There are ten guiding principles: (1) Develop and implement a robust data management plan for handling PII from collection through the life cycle of the research project; (2) weigh scientific interest against the consequences of disclosure and the risk of harm to the participant or their communities; (3) Minimize collection and use of personally identifiable information only to the extent necessary to achieve the purpose for which it was obtained; (4) Anonymization should be the default, with pseudonymization used when anonymization is not possible; (5) Obtain informed consent with full disclosure of the scientific purpose for how PII will be used; (6) Create internal procedures to ensure appropriate IT and security features are in place to protect confidentiality; (7) Public-use datasets containing PII are the exception; (8) Keep PII for the minimum possible time and destroy when no longer necessary to advance the project’s interests; (9) Periodically review the compliance landscape and seek expert support when needed; (10) Be Ethical: At all times, ensure that the benefits of the project outweigh the risk to participants. See Todd Janzen, *supra* note 42.

(i) *Sweeping Jurisdiction*: The law should protect the data collected on any farm or agricultural operation within the United States and its territories regardless of where the data is being processed. This would protect Ag Data in domestic and international transactions and may provide investigators with the authority to enforce the law in a foreign country in the event of a national security threat.

(ii) *Equitable Consent*: The law should require any company engaged in the collection or processing of Ag Data to ensure that the terms of the agreements pertaining the collection of Ag Data are clear, conspicuous, and drafted in plain English rather than legalese. The effect of the law should be that farmers are consciously aware of any actual or potential collection, use, distribution, or transfer of the Ag Data subject to the agreement. Further, the law should enable farmers to withdraw their consent at any time just as easily as they gave it.

This principle is very important as many farmers are currently unaware that their Ag Data is being collected, and that they are being taken advantage of. This would require those wishing to collect the farmer's data to essentially educate the farmer or break the law. If they choose the break the law, there will be costly consequences as described below.

(iii) *Right to Access*: The law should allow farmers to know if Ag Data is being collected on their farm and, if so, exactly what information is being collected. Further, the law should give the farmer the right to "edit" the information that has been collected on their farms.<sup>178</sup>

(iv) *Right to be Forgotten*: The law should give farmers the right to demand that a company delete any of the farmer's Ag Data in the company's possession and cease any further collection of Ag Data by the company on that particular farmer's operation.

(v) *Right to Receive*: The law should give farmers the right to request and receive any Ag Data collected on their operations.

(vi) *Protection by Design*: The law should require any party in control of the data, other than the farmer, to implement appropriate technical and organizational measures to ensure the security of the farmer's data before they can legally engage in the collection, use, or distribution of Ag Data. This requirement is imperative to ensure that not only the rights of individual farmers are protected but also the security of the country as a whole.

(vii) *Internal Record Requirements*: The law should require any company, other than the farmer, engaged in the collection, use, or

---

178. "Edit" should not be construed to mean "falsify." Here, "edit" refers to the farmer's ability to select what data the company may or may not collect, use, or distribute.

distribution of Ag Data to keep internal records of the Ag Data that they collect, use, and distribute. Each company should have an individual who is required to oversee company compliance with the law and should serve as a contact for any auditing or enforcement agency.

(viii) *Enforcement Agency*: The law should create an agency that would audit and enforce the provisions set forth in the law. The agency should have the power to issue subpoenas and other common enforcement powers retained by other agencies such as the SEC or IRS. There should also be criminal sanctions for companies or individuals that engage in fraud, theft, or any other form of unauthorized collection, use, storage, or transfer of data.

(ix) *Tiered System of Fines and Other Penalties*: The law should provide various levels of fines and penalties on companies infringing on the rights of farmers as established in the law. For egregious infringements, there should be substantial monetary fines. For minor infringements, there should be a lower monetary fine; however, the fine should not be so low that it fails to serve as a deterrent from engaging in such infringements.

While these principles and requirements may impose “hurdles” on businesses who wish to collect data from farms, the burden of implementing such measures would be substantially outweighed by the societal benefits derived from granting farmers an enforceable property right in the information collected on their farms. Granting such a property right could effectively redistribute some of the bargaining power between farmers and large companies while also mitigating the effect of thinning operation margins in American farm operations.

#### IV. CONCLUSION

Ag Data should be thought of as a kernel of corn. The farmer generally has the most significant ownership interest in the kernel of corn he produces and can market his corn even though he used tractor to produce it and a combine to harvest it. The same simple principle should apply to Ag Data. The fact that the Ag Data is collected or harvested by technology such as drones, tractors, or soil monitors should not change the fact that the data is a product of the farm operation.

Just as it is a common-sense belief of Americans that farmers should own the crops they produce, it is also the belief of many Americans that technology should serve the overall good of society as our values are reflected in our technology and the ways in which we choose to use it. Accordingly, we should not only want to exploit the benefits of technology; we should also strive to protect people from its dangers. With the power of innovation comes great ethical responsibility, and

unfortunately, ethical responsibility certainly seems to be lacking in some corners of the tech community today. Because of this and the fact that the property, intellectual property, and contract law frameworks fail to reach these desired ethical outcomes, society, as well as the American farmer, would greatly benefit from a uniform national law regulating the collection, use, storage, and transfer of the Ag Data generated in America.