HOW FEDERAL COPYRIGHT LAW SUPPORTS THOSE ADVOCATING FOR THE RIGHT TO REPAIR

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I. INTRODUCTION

One unique aspect of American heritage is the esteemed position farmers and landowners have always held in society.[1] Thomas Jefferson personally worked to democratize agrarian principles, such that they would serve as a backbone for a strong nation founded on family farms.[2] He believed farming created hardworking and self-reliant individuals with personal interests in their country stemming from their status as landowners.[3] These principles gave rise to actions like the Homestead Act of 1862, which provided 160 acres to any hardworking citizen willing to invest in the land.[4] Today, new challenges are faced as industrialization causes larger operations and fewer farmers.[5] Despite this progression, the agrarian roots on which this country was founded continue to foster principles of resilience and entrepreneurship throughout rural America. America's farmers are still notoriously resilient and self-reliant, choosing to fight for complete autonomy over their operations rather than yield to third party control.[6] However, this is proving to be a difficult fight because farm operations are now operating at a scale that requires modern technology; companies—such as John Deere—have invested significant capital and time innovating these new farm technologies.[7]

One example of farmers struggling to adapt to modernity is the current debate over right to repair laws and the 1998 Digital Millennium Copyright Act

1. *See* FOOD, FARMING, AND SUSTAINABILITY: READINGS IN AGRICULTURAL LAW 3 (2d ed. 2016) (quoting Richard S. Kirkendall, *Up to Now: A History of American Agriculture from Jefferson to Revolution to Crisis*, Agric. & Hum. Values 4, 4-5 (1987)).

2. *See id.*

3. *See id.*

4. *See id.* at 4.

5. *See* FOOD, FARMING, AND SUSTAINABILITY READINGS IN AGRICULTURAL LAW, *supra* note 2, at 19.

6. *See generally* Nathan Proctor, *Right to Repair is Now a National Issue*, WIRED (Apr. 1, 2019, 1:32 PM), https://www.wired.com/story/right-to-repair-elizabeth-warren-farmers/ [https://perma.cc/5WDL-RT8P].

7. *See Major AG Associations Support Right to Repair*, REPAIR.ORG (Feb. 10, 2021, 10:15 AM), https://repair.org/agriculture [https://perma.cc/C25B-G9L6].

(DMCA) that makes digital piracy illegal.[8] Modern combines are equipped with computer systems to make planting incredibly precise and store information pertaining to the landscape and crops.[9] However, this information is not accessible to farmers—who typically pay hundreds of thousands of dollars to own the equipment—because the software integrated into the machine is protected by copyright law.[10] When John Deere sells a combine, they claim the farmer is actually purchasing "an implied license for the life of the vehicle to operate the vehicle."[11] Essentially, farmers do not have the right to do anything with the equipment beyond driving it.[12] Farmers are even prohibited from making minor repairs during use, such as troubleshooting error codes or fixing sensors.[13] The software used to diagnose and repair the equipment is owned exclusively by the dealer who sold the tractor.[14] When farmers "hack" the machinery without the appropriate software or password(s) in attempt to fix the machine on their own, they can be found guilty of copyright infringement.[15] To avoid this, farmers face the added time and expense of hauling equipment to the dealer for repair or waiting for an authorized technician to come to the farm.[16] In response, farmers have lobbied to their state legislatures, who have in turn introduced bills in prominent farming states such as Iowa, Nebraska, and Illinois for the "right-to-repair," with the goal of providing to farmers limited rights to bypass dealer software.[17] Even though the legislation has been introduced, states have yet to enact laws that would force manufacturers to provide tools, equipment, and software passwords for repair to both individuals and independent repair technicians.[18]

This Note considers both the interests of farmers and manufacturers like John Deere in the proposed right to repair legislation. Part II of this Note will briefly summarize the fundamentals of copyright law as applied to software rights. Part III analyzes what impact legalizing the right to repair would have on the

8. *See* Kyle Wiens, *New High-Tech Farm Equipment is a Nightmare for Farmers*, WIRED (Feb. 5, 2015, 7:00 AM), https://www.wired.com/2015/02/new-high-tech-farm-equipment-nightmare-farmers/ [https://perma.cc/5D5B-RDEF].

9. *See id.*

10. *See id.*

11. Proctor, *supra* note 7.

12. *See* Wiens, *supra* note 9.

13. *See id.*

14. *Id.*

15. *Id.*

16. *See generally* Daniel Moore, Comment, *You Gotta Fight for Your Right to Repair: The Digital Millennium Copyright Act's Effect on Right-to-Repair Legislation*, 6 TEX. A&M L. REV. 509, 510 (2019).

17. *See id.* at 515.

18. *See id.*

agricultural industry. Part IV looks at these arguments from the perspective of the manufacturer and considers the reasons for abandoning any proposed legislation. Part V looks at the history of the DMCA, and applicable federal copyright law defenses, which could be argued for the right to repair. Part VI will discuss current proposed state legislation. Part VII will review federal copyright law preemption concerns. Finally, Part VIII will conclude by summarizing the various policy benefits of allowing farmers to have the right to repair.

II. UNDERSTANDING COPYRIGHT LAW

Article 1, Section 8, Clause 8 of the United States Constitution grants Congress the power to "promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."[19] Pursuant to this constitutional provision, Title 17 of the United States Code offers copyright protection to original works of authorship.[20] The utilitarian ideology for protecting authors is that it incentivizes new works, which in turn benefits the public.[21] In other words, the ultimate goal of the Copyright Act is not to reward authors, but to promote public good by stimulating creativity through limited personal reward.[22]

A. What is Copyrightable?

Copyrightable subject matter is codified in 17 U.S.C. § 102(a) as "original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device."[23] The statute provides eight exclusive categories that can encompass a work of authorship:

> (1) literary works; (2) musical works, including any accompanying words; (3) dramatic works, including any accompanying music; (4) pantomimes and choreographic works; (5) pictorial, graphic, and sculptural works; (6) motion pictures and other audiovisual works; (7) sound recordings; and (8) architectural works.[24]

19. U.S. CONST. art. I, § 8, cl. 8.

20. *See* 17 U.S.C. § 102.

21. *See* MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 1.03 (A)(1) (Matthew Bender, rev. ed. 2020).

22. *See id.*

23. 17 U.S.C. § 102(a).

24. 17 U.S.C. § 102(a)(1)-(8); *see also* U.S. COPYRIGHT OFF., CIRCULAR 1: COPYRIGHT BASICS 1 (2019) [hereinafter COPYRIGHT BASICS].

This protection is limited to the author's expression and does not cover any idea, principle, discovery, method, or anything else beyond the author's original creativity.[25] Articles with a useful function are not eligible for copyright protection.[26] Only the artistic elements that can be conceptually realized separate from the useful article can be copyrighted.[27] Significantly, copyright protection is automatic and attaches at the time the work is fixed in a tangible medium.[28] A copyright can be registered under federal law through the copyright office in order to receive additional benefits, but this registration is not required.[29]

B. Software is Eligible for Copyright Protection

The later statutory categories, such as plays and music, are often understood by the general public as copyrighted works. People are also likely to conceptualize printed books or manuscripts as copyrightable literary works. Courts have consistently interpreted "literary work" to also encompass software and computer programs.[30] A computer program is defined as "'a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result.'"[31] The legislative history grants copyright protection to "'computer programs to the extent that they incorporate authorship in the programmer's expression of original ideas, as distinguished from the ideas themselves.'"[32]

There is a low bar for originality and creativity for purposes of establishing copyright protection; therefore, any showing of original authorship of computer software can normally meet this requirement.[33] Initially, there was concern this standard was too low of a burden, and software should receive patent protection (a form of intellectual property (IP) protection typically applied to useful inventions, wherein the inventor receives the exclusive right to practice that invention for a limited time); however, there was uncertainty regarding patent eligibility exceptions directed toward abstract ideas or software that did nothing more than

25. *See* 17 U.S.C. § 102(b); *see also* Baker v. Seldon, 101 U.S. 99, 103 (1879) (explaining that a book describing a system of book-keeping cannot receive copyright protection for the underlying ideas or tables presented in the copyrighted book).

26. *See* Star Athletica, LLC v. Varsity Brands, Inc., 137 S. Ct. 1002, 1010 (2017).

27. *See id.* at 1014.

28. COPYRIGHT BASICS, *supra* note 25.

29. *See id.*

30. *See* Brian T. Yeh, REPAIR MODIFICATION, OR RESALE OF SOFTWARE-ENABLED CONSUMER ELECTRONIC DEVICES: COPYRIGHT LAW ISSUES 4 (2016).

31. *Id.* (quoting 17 U.S.C. § 101).

32. Oracle Am., Inc. v. Google Inc., 750 F.3d 1339, 1354 (Fed. Cir. 2014) (quoting H.R. REP. NO. 94-1476, at 54).

33. *See id.* at 1355.

exist on a computer.[34] This ultimately made copyright protection for the code sequence more appropriate for the task of incentivizing programmers.[35]

In 2014, the Federal Circuit heard *Oracle v. Google,* which involved 37 packages of computer source code containing Java programming language for writing applications being licensed by Oracle—and allegedly infringed by Google.[36] The district court decided that the software was not entitled to copyright protection, but the district court was overturned by the appellate court.[37] The district court reasoned that there was a limited number of ways to write the code, so it should be barred by the merger doctrine, which prohibits granting an exclusive right in something that cannot be expressed in more than one or a few ways, such as names and phrases.[38] The appellate court cited to the legislative history and relied on past decisions in finding there is a low bar for original works, and the software satisfied these because the overall structure was original and creative.[39] The appellate court also held that the "structure, sequence, and organization" of software can be eligible for copyright protection.[40] This includes protection for both source code (series of numbers or symbols authored by a programmer) and object code (instructions in 0s and 1s the computer actually reads).[41] With this information, manufacturers are given free rein to incorporate protected software into almost any imaginable consumer product. This free rein extends beyond vehicle firmware and into products such as Keurig's, cell phones, household appliances, and any number of consumer goods.[42] This trend may lead one to question whether the utilitarian ideals of the copyright clause are truly being protected through the current regime.

34. *See* David Hopkins, *Can You Patent Your Software?*, COOLEYGO, (Feb. 10, 2021, 10:15 AM), https://www.cooleygo.com/can-you-patent-software/ [https://perma.cc/F94E-7LBR]; s*ee generally General Information Concerning Patents*, U.S. PAT. TRADEMARK OFF. (Oct. 2015), https://www.uspto.gov/patents-getting-started/general-information-concerning-patents [https://perma.cc/8UW4-P3YX].

35. *See General Information Concerning Patents*, U.S. PAT. TRADEMARK OFF. (Oct. 2015), https://www.uspto.gov/patents-getting-started/general-information-concerning-patents [https://perma.cc/8UW4-P3YX]; *see generally* David Hopkins, *Can You Patent Your Software?*, COOLEYGO, (Feb. 10, 2021, 10:15 AM), https://www.cooleygo.com/can-you-patent-software/ [https://perma.cc/F94E-7LBR].

36. *See Oracle Am., Inc.*, 750 F.3d at 1347.

37. *See id.* at 1347-1348.

38. *Id.* at 1352.

39. *Id.* at 1354.

40. *See id.* at 1381.

41. *See* U.S. COPYRIGHT OFF., SOFTWARE-ENABLED CONSUMER PRODUCTS: A REPORT ON THE REGISTER OF COPYRIGHTS 12 (2016).

42. *See* Yeh, *supra* note 30, at 2.

C. Rights Granted by Copyright Protection

Copyright protection gives the author the exclusive right to: (1) reproduce the copyrighted work; (2) prepare derivative works; (3) distribute the copyrighted work or copies to the public; (4) perform literary, musical, dramatic, or choreographic works to the public; (5) display the work to the public; and (6) perform sound recordings publicly through digital audio transmission.[43] Under the current regime, these rights last for the entire life of the author plus another 70 years after the author's death.[44] If the work is anonymous or a work made for hire, the copyright lasts 95 years from publication or 120 years from creation.[45] Due to the utilitarian principles supporting intellectual property protection, the government is hesitant to grant monopolies or reduce the flow of ideas and art to the public pool.[46] When a patent is granted on a new invention, the right to practice exclusively will expire after a 20-year period.[47] This alternative makes copyright protection favorable to manufactures trying to hold intellectual property rights for the life of the product.

In recognizing software as a unique form of copyrightable literary work, the legislature carved out some special exemptions for software copyright protection.[48] Specifically, there are statutory exceptions to the right of reproduction for copyrighted software.[49] It is not copyright infringement for the rightful owner of a copy of a computer program to authorize another copy to be made from their copy of the computer program—in the interest of carrying out an essential step necessary for using the program—as long as it is not copied for any other reason besides archival purposes.[50] A copyrighted computer program can also be leased or sold by its rightful owner as long as all rights are transferred in an exact copy.[51] The federal copyright statute also expressly provides that it is not copyright infringement for the owner or licensee of a machine containing a computer program to make a copy of the computer program, if the sole purpose of the copy is to repair that machine.[52] A copy made in this manner must be destroyed after the repairs are finished and it is required that no computer program be accessed except

43. 17 U.S.C § 106 (1)-(6).
44. COPYRIGHT BASICS, *supra* note 24, at 4.
45. *Id.*
46. *See generally General Information Concerning Patents*, *supra* note 34.
47. *See id.*
48. *See* Yeh, *supra* note 30, at 9.
49. *Id.* at 4.
50. 17 U.S.C. § 117(a).
51. *Id.* at (b).
52. *Id.* at (c).

to the extent necessary to activate the machine.[53] These provisions strongly favor arguments for right to repair laws because the Federal Circuits have confirmed that DMCA provisions—as discussed later in this paper— are unlikely to apply to such activity.[54] The DMCA protects copyright holders from an act that "infringes or facilitates infringing a right protected by the Copyright Act."[55] According to the Federal Circuit's reading of 17 U.S.C. § 117, copying software for a limited purpose such as machine repair is not prohibited by the Copyright Act, and a court could decide to dismiss such claims when they are made under the DMCA.[56]

However, arguing the DMCA does not apply due to a 17 U.S.C. § 117 exception would rarely be practicable because its exceptions are narrow and only apply to computer programs.[57] In varied, fact-based inquires for different products, the copyright statute would apply inconsistently, leaving more questions than answers for inventors and those trying to practice potential exceptions.[58]

Additionally, manufacturers like John Deere are protected through the restrictive license agreements signed by purchasers, which explicitly prohibit making copies of software-enabled products for the purpose of performing repairs.[59] Under these license agreements, the purchaser is not really the owner for purposes of 17 U.S.C. § 117.[60]

D. What is Copyright Infringement?

Copyright infringement is typically determined using a two part test: (1) was there copying; and (2) was there improper appropriation or wrongful financial gain by the infringer?[61] However, in most jurisdictions software infringement is evaluated using an abstraction filtration test that relies on principles separating underlying ideas from any artistic expression (also referred to as "the idea expression dichotomy").[62] The idea expression dichotomy focuses on separating

53. *Id.*

54. *See* Cory Hojka, *Federal Circuit Broadly Interprets Copyright Safe Harbor for Computer Repair*, PATENTLYO (Aug. 24, 2005), https://patentlyo.com/patent/2005/08/federal_circuit_2.html [https://perma.cc/54S6-98R5].

55. *Id.* (citing Storage Tech. Corp. v. Custom Hardware Eng'g & Consulting, Inc., 421 F.3d 1307, 1318 (Fed. Cir. 2005)).

56. Hojka, *supra* note 54.

57. *See* 17 U.S.C. § 117(c).

58. *See* Letter from Senate Committee on the Judiciary to U.S. Copyright Office (Oct. 22, 2015), *in* U.S. COPYRIGHT OFF., *supra* note 41.

59. *See generally* U.S. COPYRIGHT OFF., *supra* note 41, at 3-5.

60. *See generally id.*

61. *See* Arnstein v. Porter, 154 F.2d 464, 468-469 (2nd Cir. 1946).

62. *See* Comput. Assocs. Int'l, Inc. v. Altai, Inc., 982 F.2d 693, 704 (2d Cir. 1992).

the underlying uncopyrightable idea from the expression or specific manifestation of an author which is protected by copyright law.[63] Pure code can be an uncopyrightable idea, thus it is necessary to look at the structural components of the code to filter out portions that show minimum originality and creativity.[64] Finally, the copyrightable pieces of the code—once filtered from the general source code—can be compared to other copyrighted segments of code to see if they are similar enough to conclude there was copying to a degree constituting infringement.[65] Non-protected purely technical expressions, which cannot receive copyright protection under the idea expression dichotomy, remain in the public domain and are not considered in an infringement analysis.[66] Both the Second and Ninth Circuits have repeatedly upheld this test as proper for gauging infringement of products containing software.[67]

Giving farmers the right to copy software for repair purposes could potentially infringe some of the enumerated categories of exclusive rights granted to authors by the copyright statute.[68] It is common practice for "tinkerers" to make a copy of the program and transfer it to a test environment for study.[69] This is an unauthorized copy and violates the author's reproduction right.[70] It is also common to copy the computer program and add to it by developing a new program or by integrating it into an existing program.[71] This constitutes an unauthorized derivative work.[72] If a modified device or replacement part is sold, it could infringe on the author's distribution right.[73] Finally, if a user posts the code where it is exposed to the public, such as on the internet, it could potentially infringe on the author's exclusive right to display their work.[74] These are four enumerated rights of the copyright holder that are susceptible to issues arising from the right to repair.

63. *See generally* Peter G. Spivack, *Does Form Follow Function? The Idea/expression Dichotomy in Copyright Protection of Computer Software*, 35 UCLA L. Rev. 723, 772 (1988).
64. *See Comput. Assocs. Int'l, Inc*., 982 F.2d at 707.
65. *Id.*; *see also* Oracle Am., Inc. v. Google Inc., 750 F.3d 1339, 1370 (Fed. Cir. 2014).
66. *Comput. Assocs. Int'l, Inc.*, 982 F.2d at 714.
67. *See Oracle Am., Inc.*, 750 F.3d at 1357.
68. U.S. COPYRIGHT OFF., *supra* note 41, at 31.
69. *See id.*
70. *Id.*
71. *See id.*
72. *See id.*
73. *Id.*
74. *See id.*

Copyright infringement is decided as a matter of strict liability.[75] Generally, when one infringes any of the exclusive rights granted by copyright protection, the copyright owner can sue for actual damages and any profits gained by the infringer.[76] In some cases, the copyright owner may also be entitled to statutory damages, which are damages enumerated by the copyright statute.[77]

III. WHAT IMPACT DOES "RIGHT TO REPAIR" HAVE ON THE AGRICULTURE INDUSTRY?

Software is consistently integrated into our lives by improving common goods in what has been dubbed the "'smart' revolution."[78] These devices are capable of connecting to the internet and are no longer singularly driven toward consumer conveniences such as smart watches, smart phones, and smart TVs.[79] This technology is driving advancement in healthcare through improving personal medicine devices like heart and blood monitors.[80] John Deere, the world's largest supplier of agricultural machinery, follows this trend and builds tractors and other equipment to run off highly advanced software.[81]

A. Licensing Agreements and Digital Rights Management (DRM)

The use of software to improve the efficiency of agricultural machinery has raised challenging ownership questions. Perhaps the most perplexing is whether farmers own the machinery, like a tractor purchased from John Deere, or whether farmers own merely the "body" of the tractor, which serves as ornamentation for the underlying—and more valuable—computer systems.[82] As previously noted, John Deere has informed the public of their stance on this issue stating farmers own "an implied license for the life of the vehicle to operate the vehicle."[83]

75. Timothy B. McCormack, *Copyright Infringement – I Didn't Know!*, SEATTLE PI (Nov. 3, 2011, 2:33 PM), https://blog.seattlepi.com/timothymccormack/2011/11/03/copyright-infringement-i-didnt-know/ [https://perma.cc/WT73-UPWZ].

76. 17 U.S.C. § 504(b).

77. *Id.* at (a)(2).

78. *See* Kyle Wiens, *Before I Can Fix This Tractor, We Have to Fix Copyright Law*, SLATE (Jan. 13, 2016, 8:57 AM), https://slate.com/technology/2016/01/copyright-law-shouldn-t-keep-me-from-fixing-a-tractor.html [https://perma.cc/3D5Z-2EMM].

79. *See* Yeh, *supra* note 30, at 1.

80. *See id.*

81. *See* Kyle Wiens, *We Can't Let John Deere Destroy the Very Idea of Ownership*, WIRED (Apr. 21, 2015, 9:00 AM), https://www.wired.com/2015/04/dmca-ownership-john-deere/ [https://perma.cc/89R7-LAP4].

82. *See id.*

83. *Id.*

A normal software sales transaction involves an end user license agreement with the purchaser at the time of transaction, which permits the manufacturer to restrict what specific uses or distribution rights the purchaser has.[84] Such agreements affect who has actual ownership of the software. Legitimate ownership is important because without full ownership rights the purchaser cannot assert defenses like the first sale doctrine, which will be discussed later in this paper.[85] Moreover, licensing agreements can be more restrictive than copyright law as these agreements may prevent the use of software that would otherwise be acceptable under the law.[86]

Another method of control available to manufacturers is the use of DRM, which involves the purposeful implementation of electronic technologies to prevent individuals from making copies of the work.[87] These technologies commonly include the internet, encrypted messages, or content scrambling systems so that the copyright holder can continue to exercise control after a sale.[88] Copyright law makes it illegal for someone to try and bypass these measures, for circumvention is laid out as a separate offense that can be charged in addition to charges for any illegally created copies of the software.[89] Farmers and small repair shops argue this offense is a misuse of power because manufacturers are purposefully utilizing DRM technologies in machines for no purpose other than to prevent outside repairs and to make more money.[90]

According to Wikipedia, *Firmware* is defined as "a specific class of computer software that provides the low-level control for the device's specific hardware."[91] Manufacturers can specifically design firmware to be used in vehicles to make it difficult or impossible to make unauthorized repairs because only authorized dealers will have access codes to make the repairs.[92] This restriction has resulted in a black market of hacked firmware where farmers install software on

84. Yeh, *supra* note 30, at 5.

85. U.S. COPYRIGHT OFF., *supra* note 41, at 21.

86. *See id.*

87. *See* Yeh, *supra* note 30, at 8.

88. *Id.*

89. *Id.* at 8-9.

90. Krista L. Cox, *Did The Supreme Court Pave The Way For You To Actually Be Able To (Legally) Repair Your Car?*, ABOVE THE LAW (Aug. 24, 2017, 1:07 PM), https://abovethelaw.com/2017/08/did-the-supreme-court-pave-the-way-for-you-to-actually-be-able-to-legally-repair-your-car/ [https://perma.cc/9F5F-HDQV].

91. *Firmware*, WIKIPEDIA (Feb. 10, 2021, 10:15 AM), https://en.wikipedia.org/wiki/Firmware [https://perma.cc/E94G-E8U4].

92. Kristian Suarez, Note, *Vehicle Manufacturer Practices in the Digital Era: What Can the Law do When Unfair Practices Threaten Farmers*, 94 N.D. L. REV. 511, 512 (2019).

their tractors to bypass the prohibitive measures and diagnose the mechanical problems on their own.[93]

B. John Deere Pushes Back

John Deere counters by arguing any license agreement restricting software use and access in their machines is a valid contract between them and their purchasers, and they point to the following language:

> THIS LICENSE AGREEMENT GOVERNS YOUR USE OF ANY SOFTWARE AND OTHER MATERIALS (SOFTWARE AND OTHER MATERIALS INDIVIDUALLY OR COLLECTIVELY REFERRED TO AS "LICENSED MATERIALS" OR "LM") THAT IS (1) PROVIDED BY LICENSOR OR ITS AFFILIATES; (2) EMBEDDED OR INSTALLED IN, OR ASSOCIATED WITH, ANY DISPLAY, ENGINE CONTROL UNIT, INVERTER, CONTROLLER, ELECTRONICS MODULE, SENSOR, ACTUATOR, OR COMPUTING UNIT (INDIVIDUALLY OR COLLECTIVELY "LICENSED PRODUCTS" OR "LP") OF JOHN DEERE EQUIPMENT OR OF OTHER EQUIPMENT THAT IS MADE A PART OF A SALE OR LEASE TO YOU (EITHER OR BOTH JOHN DEERE EQUIPMENT AND SUCH OTHER EQUIPMENT REFERRED TO AS "AUTHORIZED EQUIPMENT")[94]

Farmers who sign these license agreements are agreeing to use John Deere parts and authorized maintenance professionals, regardless of the additional time and expense of doing so.[95] This agreement places a particular burden on farmers short on time during harvest season and for farms in rural areas with no immediate access to John Deere authorized repair service facilities.[96] John Deere further protects their interests by including in their licensing agreement a provision barring farmers from bringing suit for "crop loss, lost profits, loss of goodwill, loss of use

93. Jason Koebler, *Why American Farmers are Hacking Their Tractors with Ukrainian Firmware: A Dive Into the Thriving Black Market of John Deere Tractor Hacking*, VICE (Mar. 21, 2017, 3:17 PM), https://motherboard.vice.com/en_us/article/xykkkd/why-american-farmers- are-hacking-their-tractors-with-ukrainian-firmware [https://perma.cc/H4KJ-S9G5].

94. *License Agreement for John Deere Embedded Software*, DEERE (Feb. 10, 2021, 10:15 AM), https://www.deere.com/privacy_and_data/docs/agreement_pdfs/english/2016-10-28-Embedded-Software-EULA.pdf [https://perma.cc/VW5L-ANAL].

95. *See Ownership of Software Rights*, POTS AND PANS (May 18, 2017), https://potsandpansbyccg.com/2017/05/18/ownership-of-software-rights/ [https://perma.cc/NU9W-YEU9].

96. *See id.*

of equipment … arising from the performance or non-performance of any aspect of the software."[97]

C. How Agriculture Fuels the Economy

Agriculture has a long history of being uniquely important in supporting the United States economy.[98] This unique positioning makes right to repair laws focused on the agriculture industry different from other markets such as smart phone or personal vehicle repairs. Farms and ranches supply more than just the nation's food supply; agriculture's role in rural areas supports necessary job growth, energy security, and economic security.[99] There are many sectors with an agriculture backbone, including food processing and manufacturing companies.[100] This creates a complicated web of interests where the success of farmers is a public benefit because it supports our agriculture-based economy and this framework puts farmers in a unique bargaining position for exemptions from copyright infringement.

IV. ARGUMENTS PRESENTED BY MANUFACTURERS

John Deere authored a position paper that addressed the policy rationale for their position on upholding their software license agreements as a valid contract.[101] First, it noted there are valid safety concerns due to the complexity of the machines, which necessarily contain millions of different software codes.[102] John Deere argued that if an inexperienced third-party repairman disrupted one of these critical components, it would result in unsafe operation of these large machines, potentially leading to injury.[103] In addition to safety concerns, John Deere noted that in 2015, limited privileges had already been offered to farmers to access board controls for environmental and operational safety, making it unnecessary to provide third parties with the same privileges for the purpose of making repairs.[104]

97. Koebler, *supra* note 93.

98. JOINT ECON. COMM., THE ECONOMIC CONTRIBUTION OF FARMERS AND THE IMPORTANCE OF AGRICULTURAL EXPORTS 1 (2013), https://www.jec.senate.gov/public/_cache/files/266a0bf3-5142-4545-b806-ef9fd78b9c2f/jec-agriculture-report.pdf [https://perma.cc/PN6M-UYZH].

99. *Id.*

100. *Id.*

101. Response to Kansas HB 2122 from Thomas E. Iles, Deere & Company Director of State Public Affairs, on Digital Electronic Repair Requirements, to Kansas State Legislature (on file with the Drake J. Ag. L.).

102. *See id.*

103. *See id.*

104. *See id.*

It is also possible that changes to the software by third parties could disrupt machine performance, change the emission controls, disrupt resale and transparency, or void warranties.[105] John Deere further noted that the extremely technical nature of various machine repairs is increased by the specificity of models with specific parts and operations depending on the year, make, and model.[106] Because of this, it is hard to ensure third party and independent service providers are properly trained and provisioned.[107]

John Deere also argued they have a service contract in place and legislative materials advocating that the right to repair inappropriately places the government in the middle of such an agreement, thus violating their freedom to contract.[108] Further, such government involvement could jeopardize John Deere's ability to control their brand reputation.[109] If John Deere gives every consumer and repair facility the same information and the quality of repairs is inconsistent prior to resale, it could jeopardize the market value of the company's product and may reduce their incentive to produce these products.[110]

It is nearly impossible to assign a shelf life to products that are being inconsistently maintained for the purpose of guaranteeing warranties.[111] Additionally, requiring manufacturers to hand out information explaining how to make repairs is not an insignificant task.[112] Informing purchasers and independent repair shops would require generating spare parts and manuals without proper compensation for these efforts, and with limited knowledge on what the fair value would be for products in this type of market.[113] This effort could ultimately lead to consumers paying the price for additional expenses incurred by manufacturers.

Other manufacturers have fought against allowing the right to repair and authored their own position papers.[114] The Association of Equipment

105. *See id.*

106. *See id.*

107. *See id.*

108. *See id.*

109. Marissa MacAneney, Note, *If It is Broken, You Should Not Fix It: The Threat Fair Repair Legislation Poses to the Manufacturer and the Consumer*, 92 ST. JOHN'S L. REV. 331, 342 (2018).

110. *See id.* at 343.

111. *See id.* at 356.

112. *See id.* at 357.

113. *See id.* at 346.

114. *See, e.g.*, *AEM, EDA Announce Statement of Principles 'Right to Repair'*, ASS'N OF EQUIP. MFRS. (Feb. 1, 2018), https://www.aem.org/news/aem-eda-announce-statement-of-principles-on-right-to-repair/ [https://perma.cc/J9JC-6ZGF].

Manufacturers and the Equipment Dealers Association are against farmers having the right to repair.[115] However, in 2018, these organizations, in an effort to compromise announced they would release information to farmers by 2021 to make it possible for farmers to perform very basic repairs on their own equipment.[116] This would include providing various manuals as well as training on how to use specific diagnostic tools in the field.[117] These organizations hope to compromise by helping to differentiate between minor repairs and major ones that would need to be fixed by an authorized service.[118] This compromise would cut out many of the concerns the manufacturers have regarding the loss of control that could occur with the proposed right to repair legislation, which would authorize individuals and third parties to make repairs.[119]

V. THE DIGITAL MILLENNIUM COPYRIGHT ACT

In response to the rapid progress seen in technology throughout the past several decades, Congress passed the DMCA in 1998.[120] The goal of enacting the statute was to protect those who had obtained copyrights from infringement carried out through digital means, including infringement through the internet.[121] The DMCA achieves this protection by classifying the act of circumventing DRM security measures, so as to hack the copyrighted work, a separate and independent act of infringement.[122] Such acts could include, but are not limited to, descrambling or decrypting a work and removing or disabling a technological measure.[123] The DMCA also expressly calls out those who enable circumvention of access controls, through the marketing of devices made for such a purpose, as liable for copyright infringement.[124] By making the act of bypassing circumvention technologies copyright infringement, DMCA holds violators accountable even if they fail to infringe on one of the exclusive rights of the copyright holders.[125]

115. *See id.*
116. *See id.*
117. *Id.*
118. *See id.*
119. *See id.*
120. Yeh, *supra* note 30, at 8-9.
121. *Id.*
122. *See id.*
123. *Id.*
124. *Id.*
125. *Id.*

A. Liability Provisions of the Digital Millennium Copyright Act

The DMCA is codified in 17 U.S.C § 120 and addresses the issues of access and copying separately.[126] Access to copyrightable computer programs is prohibited in § 1201(a)(1): "No person shall circumvent a technological measure that effectively controls access to a work protected under this title."[127] Trafficking behaviors are prohibited in § 1201(a)(2):

> No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that– . . . effectively controls access to a work . . . has only limited commercially significant purpose other than to circumvent . . . [or] use in circumventing a technological measure that effectively controls access to a work.[128]

Copying copyrighted computer programs through means of anti-trafficking is prohibited in § 1201(b)(1): "No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof."[129] This statute does not include an anti-circumvention provision for copying because this is already barred by the Copyright Act.

B. Case Law Interpreting Digital Millennium Copyright Act Provisions

The following cases demonstrate how circuits have struggled to decipher the legislative intent of the DMCA and implement the different exceptions. The courts were tasked with deciding cases based on the facts and determining the legislative intent of Congress. For this reason, there is a discrepancy on what an appropriate balancing test should be for DMCA claims, resulting in an unresolved circuit split.

1. Chamberlain Group, Inc. v. Skylink Technologies, Inc.

Chamberlain Group, Inc. v. Skylink Technologies, Inc. was heard in the Northern District of Illinois, and concerned a "rolling code" computer program embedded in a garage door opener that controlled the transmitter signal required for the garage door opener to activate the door.[130] The defendant was a competitor who made replacement garage door openers, and used a program similar to the

126. *See* 17 U.S.C. § 1201.

127. *Id.* at (a)(1)(A).

128. *Id.* at (a)(2).

129. *Id.* at (b)(1).

130. *See* Chamberlain Grp., Inc. v. Skylink Techs., Inc., 381 F.3d 1178, 1183 (Fed. Cir. 2004).

plaintiff's rolling code to activate the garage door.[131] The charge was the rolling code was a technological measure that Skylink was selling technology to help circumvent.[132] The real motive for Chamberlain was to have control over the market so no one but them could sell replacement parts for their garage door openers.[133] The court held this was too broad of a reading for DMCA because the intent was to provide minimal protection to copyright holders, not create a new property right.[134] The key to this decision was the policy argument that there should be two types of product classifications establishing an infringing nexus: products that enable copying and products that enable legitimate use. Skylink was copying the rolling code only for legitimate use.[135]

2. MDY Industries, LLC v. Blizzard Entertainment, Inc.

MDY Industries, LLC v. Blizzard Entertainment, Inc. was heard in 2010 in the Ninth Circuit and allowed for a broader interpretation of the DMCA than *Chamberlain*.[136] Blizzard developed the online video game World of Warcraft, and players could download the software onto their computer and subscribe to it on a continuous basis.[137] There is no single player or offline mode, so the player instead joins a video game "world" with other players.[138] The defendant developed a glider program that could play the game for the user while they were away from the computer in order to allow the user to move through levels of the game more quickly.[139] It is presumed the game becomes more interesting at higher levels, so it is desirable to skip the early stages of the game. The court confirmed users of the game are merely licensees and cannot use the software outside of the End User License Agreement.[140] This agreement prohibited the use of bots or third party devices to manipulate the game's software because it disrupted the creative flow and experience of playing the game.[141] On appeal, the Ninth Circuit decided that the DMCA intended to create a property right and there were no valid policy

131. *See id.* at 1184.
132. *Id.* at 1186.
133. *Id.* at 1201.
134. *Id.* at 1202.
135. *Id.* at 1198.
136. *See generally* MDY Indus., LLC v. Blizzard Ent., Inc. 629 F.3d 928 (9th Cir. 2010).
137. *See id.* at 935.
138. *Id.*
139. *See id.* at 935.
140. *Id.* at 937.
141. *Id.* at 936.

reasons to read beyond the text to establish an infringement nexus.[142] A permanent injunction was issued against MDY's bot for violation of the DMCA.[143]

C. Library of Congress Exemption for Farmers Fixing Their Tractors

The DMCA builds on limitations to the reach of statutory prohibition against DRM circumvention by granting the Library of Congress the authority to provide temporary exceptions to 17 U.S.C. § 1201(a) every three years, as is justified by current technologies or policies.[144] These exceptions are facilitated by consumers submitting comments during public rule making and advocating for the need to have circumvention allowed for a specific type of good.[145] If the Library approves a selection for a class of goods, then the exemption applies for three years.[146]

Advocates for the right to repair point out the DMCA further limits its own scope by including the provision that allows three important exemptions for the purpose of reverse engineering.[147] It is lawful for someone who rightfully possesses a copy of a computer program to "circumvent a technological measure that affectively controls access to a particular piece of that program for the sole purpose of identifying and analyzing those elements of the program, which are necessary to achieve interoperability . . . with another programs."[148] It is also permitted to "employ technological means to circumvent a technological measure . . . To enable identification and analysis . . . or for the purpose of enabling interoperability of an independently created computer program."[149] Finally, the statute makes it permissible to make available to others the means to engage in "interoperability of an independently created computer program with other programs."[150]

VI. FAIR USE DEFENSE

Fair use is an affirmative defense applied to acts of copyright infringement where application of the copyright statute would create such a rigid standard that it would stifle the creativity of authors.[151] In other words, in certain situations

142. *Id.* at 939.
143. *Id.* at 954.
144. Yeh, *supra* note 30, at 9.
145. *Id.*
146. *Id.*
147. 17 U.S.C. § 1201(f).
148. *Id.*
149. *Id.*
150. *Id.*
151. *See* NIMMER & NIMMER, *supra* note 21, § 13.05.

judges can exercise judgement and common sense to declare copyright infringement is fair use and therefore allowable.[152]

A. Four Factor Test

The current statutory test for fair use sets out a four factor balancing test courts use when deciding if infringement was fair use.[153] The statute also enumerates certain uses that are commonly found to be fair use: "criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research."[154] However, these categories are not automatically presumed to be fair use and must still be evaluated using the four factors for the statute's balancing test: "(1) purpose and character of the use; . . . (2) nature of the copyrighted work; (3) amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) effect and use upon the potential market for or value of the copyrighted work."[155]

B. Case Law Interpreting Copyright Fair Use

The following cases portray how courts have balanced the factors for fair use in the past. There are specific questions commonly asked when deciding each factor, and over time the transformative nature of the work has become an essential component for an argument on fair use.

1. Sony Corporation of America v. Universal City Studios, Inc.

In *Sony Corporation of America v. Universal City Studios, Inc.*, the Supreme Court held the act of selling a Betamax video cassette recorder for at-home use was fair use.[156] Individuals were purchasing this technology for at-home use so shows could be recorded and watched at a later time.[157] The individuals who held copyright ownership of the shows and movies being recorded onto the VCR tapes brought suit to stop this technology from further enabling viewers to copy their works.[158] In its analysis, the Court turned to the policy rationale of copyright law to find balance between the copyright owner's interest in being incentivized to

152. *See id.*
153. *See* 17 U.S.C. § 107.
154. *Id.*
155. *Id.*
156. *See generally* Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417 (1984).
157. *See id.* at 459.
158. *See id.* at 419-20.

create and the public's interest in having these works introduced to the public.[159] The Court ruled these interests are best served by fair use applying to any substantial non-infringing use.[160] In *Sony*, time shifting—watching the videos at a later time—was substantial non-infringing use, thus fair use applied.[161]

2. Campbell v. Acuff-Rose Music, Inc.

Campbell v. Acuff-Rose Music, Inc. is the most recent fair use case. The Supreme Court's ruling rejected the presumption that commercial use is not fair use and instead placed the primary investigation for fair use on the transformative nature of the work.[162] *Campbell* involved a parody rock song where 2 Live Crew, a music group, took the opening rift from the successful rock song *Pretty Woman* and then used their own music and lyrics to spoof the original song.[163] The group blatantly copied the riff, but only in an effort to create a parody, which is an artistic form of criticism.[164] Under the first prong of fair use, the Court found the primary purpose of the use was for commercial gain, but did not find the commercial gain to be dispositive.[165] The nature of the copyrighted work was transformative and the parody was a new copyrightable expression, which meant this factor weighed in favor of 2 Live Crew.[166] Though the amount of the copyrightable work taken from the original weighed in favor of the defense, the Court held the music group only took what was necessary to conjure up the parody.[167] The Court also found the parody work appealed to a different market and would have a minimal impact on the market value for the original song.[168]

3. Sega Entertainment v. Accolade, Inc.

In *Sega Entertainment v. Accolade, Inc.*, the Ninth Circuit held the disassembly of a computer and the study of its components was fair use.[169] The defendant made video games and was interested in making a game compatible with

159. *See id.* at 431-32.
160. *See id.* at 454-56.
161. *See id.* at 421, 456.
162. *See* Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 594 (1994).
163. *See id.* at 572-573.
164. *See id.* at 589.
165. *See id.* at 584.
166. *See id.* at 583.
167. *See id.* at 588-89.
168. *See id.* at 592.
169. *See* Sega Enters. Ltd. v Accolade, Inc., 977 F. 2d 1510, 1527-28 (9th Cir. 1992).

the Sega Genesis.[170] Intermediate copying—or reverse engineering—is classified as copyright infringement by the copyright statute. The Ninth Circuit clarified that intermediate copying for no other purpose than pulling out the object code to study it and learn how it functions is fair use.[171] Many of the elements the defendants studied were functional and were not eligible for copyright protection, as discussed above in evaluating infringement.[172] The Ninth Circuit found the only way to get to these unprotected elements is to make an intermediate copy.[173] Despite the *Sega* ruling, the Ninth Circuit did not confirm that other copies, namely finished copies, were permitted to be made from the copyrighted work.[174]

C. Fair Use Analysis on a Farmer's Right to Repair

Based on the legislative intent of the fair use statue and the applicable precedent of evaluating fair use, farmers have a strong argument that the right to repair machinery is an act of fair use. First, it is unlikely when a farmer makes a copy of software that the primary purpose and character of the use is to make a profit.[175] Farmers are not selling this copy; they are only trying to get past the firmware to diagnose repairs. In *Sony*, the court held that making VCR tapes was a substantial non-infringing use that did not significantly alter the market or value of the videos being recorded for personal home viewing.[176] Like in *Sony*, farmers are attempting to make a copy of the vehicle firmware for personal use so they can make repairs and continue to use the machine without interruption.[177] Further, in *Campbell*, the Court held commercial use does not specifically preclude fair use if such use is transformative.[178] If a market for hacked firmware did appear as a commercial use, this fact would not completely preclude a fair use defense on behalf of the farmers. Also, courts have held that even if the use is commercial in nature, it is important to consider the greater good, and granting a monopoly to manufacturers for repairs is against precedent discouraging this kind of control.[179]

170. *See id.* at 1514.
171. *See id.* at 1519.
172. *See id.* at 1522.
173. *See id.* at 1520.
174. *See id.* at 1528.
175. *See id.*
176. *See* Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 456 (1984).
177. *See id.*
178. *See* Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 594 (1994).
179. *See Sega Enters. Ltd.*, 977 F. 2d at 1527; *see also* Daniel Cadia, Note, *Fix Me: Copyright, Antitrust, and the Restriction on Independent Repairs*, 52 U.C. Davis L. Rev. 1701, 1713-1716 (2019).

In the past, courts have chosen not to focus on the nature of the copyrighted work when applying the fair use defense to software and would likely place little weight on this factor again here.[180] However, if a court did choose to analyze this factor, it is important to note that much of computer software is functional and lacks a considerable amount of the copyrightable creativity seen in traditional creative works, thus giving this factor less weight.

The third factor weighs against the right to repair being fair use because, in order to hack the firmware, it is assumed they will have to make a copy of the entire code and not pieces of it.[181] The fourth factor, market influence, is potentially against the right to repair being fair use because it seeks to replace products and services currently being offered exclusively by manufacturers.[182] Those advocating for the right to repair must rely on arguments made against monopolies—as seen in *Sega*—and emphasize that the right to repair is the proper public policy.[183]

VII. COPYRIGHT MISUSE DEFENSE

Fair use is a common defense asserted against copyright infringement, but not the only potential argument for those seeking the right to repair to assert. Copyright misuse is rooted in common law and originally was used to prevent overly restrictive licensing agreements.[184] More simply, the doctrine could be used to prevent software from being integrated into products for the sole purpose of advancing an anti-competitive agenda, which would extend copyright protection beyond the market it was granted to.[185] Manufacturers are forthcoming in their intent to restrict the market by supplying all the services and parts for repairs.[186] Deliberately designing machines with firmware to prevent tinkering could be seen as a strategy to control the market and misuse of one's copyright.[187]

VIII. FIRST SALE DOCTRINE DEFENSE

Copyright law gives authors the exclusive right to distribute their works with stated exceptions like the first sale doctrine.[188] Once an author allows the work to

180. *See Sega Enters. Ltd.*, 977 F. 2d at 1524.
181. *See* Cadia, *supra* note 179, at 1731.
182. *Id.* at 1732.
183. *See Id.* at 1731.
184. U.S. COPYRIGHT OFF., *supra* note 41, at 59.
185. *Id.* at 60.
186. *See* Cadia, *supra* note 179, at 1716.
187. *See id.* at 1717.
188. Yeh, *supra* note 30, at 9.

enter into the stream of commerce, it becomes difficult to control distribution of that copy indefinitely. Some have argued distribution of a copyrighted work is necessarily a type of ownership transfer that cannot be subjected to a mere licensee.[189] However, current case law is trending toward allowing manufacturers to license software, as illustrated in *Vernor v. Autodesk, Inc.,* wherein Autodesk sold computer-aided design (CAD) programming with a license agreement giving them downstream control over the future distribution of the work.[190] Vernor purchased the program from one of Autodesk's authorized buyers and then was estopped from reselling the program by Autodesk when the court found a license was received for the software, and therefore Vernor could not assert the defense of the first sale doctrine.[191] Allowing transactions to proceed as a license rather than a sale allows the copyright owner to retain downstream distribution rights, making it infeasible for those seeking the right to repair to assert this defense.[192] This barrier is a critical distinction to farmers who cannot purchase equipment from manufacturers like John Deere without agreeing to all of the terms in the licensing agreement that prohibit farmers from arguing they owned rights to the software under the first sale doctrine merely by purchasing a tractor.

IX. STATE LEGISLATORS' RESPONSE

As of 2019, 20 states have introduced right to repair legislation that would force manufacturers and dealers to carefully consider how they utilize firmware that prevents individuals from making repairs.[193] This legislation is targeted toward multiple industries including cell phone and other device repairs.[194] Nebraska is leading big agriculture states toward a legislative reform that could help farmers achieve the right to repair their tractors.[195]

189. U.S. COPYRIGHT OFF., *supra* note 41, at 60.

190. *Id.* at 23.; *see also* Vernor v. Autodesk, Inc., 621 F.3d 1102, 1103 (9th Cir 2010).

191. U.S. COPYRIGHT OFF., *supra* note 41, at 24; *see also* Vernor, 621 F.3d at 1111.

192. Yeh, *supra* note 30, at 7.

193. *See California Becomes 20th State in 2019 to Consider Right to Repair Bill*, U.S. PIRG (Mar. 18, 2019), https://uspirg.org/news/usp/california-becomes-20th-state-2019-consider-right-repair-bill [https://perma.cc/98FW-52S7].

194. *See* Julia Bluff, *8 States Have Introduced Right to Repair Legislation, Apple to Oppose*, IFIXIT (Feb. 16, 2017), https://www.ifixit.com/News/8780/apple-right-to-repair [https://perma.cc/5JMB-A4XD].

195. *See* Olivia Solon, A *right to repair: why Nebraska farmers are taking on John Deere and Apple*, THE GUARDIAN (Mar. 6, 2017), https://www.theguardian.com/environment/2017/mar/06/nebraska-farmers-right-to-repair-john-deere-apple [https://perma.cc/9274-F9QE].

The Nebraska Fair Repair Act was introduced in 2017 and sparked a wave of interest throughout the agriculture industry by emphasizing repair issues in agriculture.[196] Specifically, the Nebraska Fair Repair Act requires original manufacturers for all equipment in the state comply with the following: (1) make available all diagnostic repair materials, including any updates that may arise to the software, for no charge to any equipment owner or independent repair entity; (2) make equipment and its updates available for purchase for reasonable terms; (3) the original equipment manufacturer is prohibited from selling equipment with proprietary terms; (4) original equipment manufacturers shall also make available for fair purchase any diagnostic tools; and (5) any device sold in the state for the purpose of providing security related functions cannot exclude diagnostic or repair documents that could be needed for independent repairs.[197]

Essentially, what this legislation does is take farmers back to a time before software blocks by enabling them to have their tractors repaired at any repair shop—like they did before companies like John Deere started using firmware. This goal is more straightforward than what the legislatures are requiring from manufacturers. It is unclear how burdensome it will be for companies to supply materials and training to make it possible for these repairs to take place. However, due to the unique role agriculture plays in building the United States' economy, it would likely be beneficial for companies to bear this burden, for farmers would benefit greatly from the proposed legislation.[198]

X. FEDERAL PREEMPTION

This paper has focused on a conflict within federal copyright law and then proposed a solution to said conflict through state legislation. Many stakeholders are concerned with having state legislation tackle this issue because it would create contrasting state and federal laws.[199] Under the Supremacy Clause of the United States' Constitution, when state and federal laws conflict the federal law is supreme and enforceable over state law.[200] Specifically, there are three ways for federal law to preempt state law: field preemption, conflict preemption, and express preemption.[201] Express preemption is when the language of a state statute

196. *Id.*

197. L.B. 67, 105th Leg., 1st Sess. (Neb. 2017).

198. *See generally* Mike Moffatt, *Agriculture and the Economy*, THOUGHTCO. (Jan. 27, 2020), https://www.thoughtco.com/agriculture-and-the-economy-1146847 [https://perma.cc/D5EP-QN5G].

199. *See* Moore, *supra* note 16.

200. *Id.* at 518.

201. *See id.* at 519.

directly and clearly contradicts a federal law.[202] Conflict preemption is not clearly contradicted by the text, but rather the state law is an obstacle to the federal law or clearly impossible to follow without breaking federal law.[203] Field preemption occurs when the intent of federal law is well known and has not left any room for state law to follow another agenda.[204]

Copyright law looks at express preemption, and the copyright preemption statute states that any state law falling within the realm of copyrightable subject matter and equivalent to rights granted by copyright law is preempted.[205] With its proposed bill language, however, the DMCA will not expressly preempt state legislation.[206] The right to repair legislation is focused on fair trade and consumer protection law—not copyright law.[207] Further, enacting law to protect consumers is a classic example of how states can exercise police powers.[208]

XI. BENEFITS OF HAVING THE RIGHT TO REPAIR

Federal and state farm bureaus from big agricultural states like Iowa, Texas, and Nebraska are in outspoken support of the legislation because of its ability to aid farmers and ranchers.[209]

A major concern to farmers is the cost. The machines are expensive and the price of crops are low; a hefty repair bill can be a significant financial burden on many farmers who could save money by fixing it themselves.[210] For this same reason, many farmers would push off doing repairs immediately, jeopardizing the safety of the equipment and operator.[211] Also, the price of crops fluctuates and being just days behind schedule due to waiting on parts can cause farmers to miss their optimum price point.[212] There is also an argument for autonomy insofar as

202. *Id.* at 518.

203. *Id.* at 519.

204. *Id.*

205. *See* 17 U.S.C. § 301.

206. Moore, *supra* note 16, at 519.

207. *Id.* at 520.

208. *Id.*

209. *Shouldn't Farmers Be Allowed to Fix Their Own Tractors?*, REPAIR.ORG (Feb. 10, 2021, 10:15 AM), https://repair.org/agriculture [https://perma.cc/C25B-G9L6].

210. Grant Gerlock, *Farmers Look For Ways To Circumvent Tractor Software Locks* (Apr. 9, 2017, 6:18 PM), https://www.npr.org/sections/alltechconsidered/2017/04/09/523024776/farmers-look-for-ways-to-circumvent-tractor-software-locks [https://perma.cc/Z5R8-22NX].

211. *Shouldn't Farmers Be Allowed to Fix Their Own Tractors?*, *supra* note 209.

212. *See id.*

farmers desiring to be free to own and operate their equipment.[213] With more stringent regulations and laws comes a sense of loss for some people who work hard for what they have and do not understand the reasoning behind the challenges they are facing.

XII. CONCLUSION

Currently, the law is a complicated web of common law ownership and federal copyright principles that fail to adequately address the rights held by farmers and manufactures. Right now, licensing agreements are overly restrictive and force farmers to comply with the terms set by the manufacturers. There are good reasons to believe farmers could be successful in raising a fair use defense if charged with federal copyright violations, but they are limited in other defenses because they lack actual ownership of the copied software used to make repairs. The current exemptions being offered by the copyright office to allow repairs are too narrow in scope and are not practicable. Both farmers and manufacturers struggle under the narrow exemptions to define where the line should be drawn as to what repairs are considered major and require more specialized attention. The best solution would be to set clear standards going forward by accepting the states' proposed legislation. The states are well equipped to assess the impact repair laws are having on their economies and the impact these issues are having on their respective agriculture industries. The states can then set requirements for the right to repair and resolve these issues accordingly.

213. *Id.*