

COMMENTS

COMMERCIAL PURSUITS: WORKERS' COMPENSATION EXEMPTIONS ROOTED IN THE PAST WILT WITH THE GROWTH OF SUSTAINABLE FARMING

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I. INTRODUCTION

We stand at a critical juncture in the advancement of sustainable farming. The global demand for produce is forcing modern farming operations to move away from traditional agricultural techniques.¹ Farms are implementing automated, highly efficient, and ecologically sustainable farming methods to increase agricultural output.² The United States' investment in sustainable technology will therefore necessitate renewed interpretation of existing workers' compensation laws when courts consider eligibility of modern agricultural workers.

Innovative technical applications will consequently necessitate a second look at states' respective farm labor exemptions because advancement is reclassifying large-scale greenhouse operations as commercial pursuits. Interpretation of

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1. See GEN. ASSEMBLY, UNITED NATIONS, *Food Production Must Double by 2050 to Meet Demand from World's Growing Population* (Oct. 9, 2009), <http://www.un.org/News/Press/docs/2009/gaef3242.doc.htm>.

2. See Richard Hamilton, *Agriculture's Sustainable Future: Breeding Better Crops*, SCI. AM. (July 15, 2009), <http://www.scientificamerican.com/article.cfm?id=agricultures-sustainable-future> (discussing how improved agricultural methodologies will allow countries to sustain a global increase of six to nine billion people by 2050); ECON. RES. SERV., U.S. DEP'T OF AGRIC., <http://www.ers.usda.gov/data-products/agricultural-productivity-in-the-us.aspx> (last visited Nov. 16, 2012).

the juncture between farm labor exemptions and sustainable farming technology will thus require courts to reconsider greenhouse employees as “commercial” workers, who are outside the scope of many states’ farm labor exemptions.³

This discussion of differing farm labor exemptions and their extension to commercial greenhouse workers is composed of three general parts. Part II is an overview of workers’ compensation, which will move from a synopsis of current workers’ compensation laws to the basics of states’ farm labor exemptions. Part III is a discussion of potential statutory interpretation based on emerging technology in the commercial farming industry. The section will discuss the four interpretative markers from past court opinions and how those markers impacted the analysis of traditional agricultural methods. Part IV discusses the recharacterization of greenhouse employees as no longer agricultural, but rather commercial workers, due to the implementation of innovative greenhouse technology and production methods.

In the United States, each state has adopted some form of a workers’ compensation statute and a corresponding farm labor exemption.⁴ The breadth of coverage customarily used by states does not cover workers performing “agricultural” pursuits.⁵ Therefore, this comment will discuss how farm labor exemptions will become increasingly inapplicable to greenhouse employees engaged in “commercial” pursuits. The examination will ultimately illustrate how states have failed to enact legislation that accounts for greenhouse workers who are injured while utilizing high-efficiency technology in a “commercial” capacity.

3. *Farm Labor Exemption*, PEARLMAN, BORSKA & WAX, <http://www.pbw-law.com/newsletters/workers-compensation/farm-labor-exemption> (last visited Oct. 13, 2013).

4. See Heather L. Palmer, *Workers’ Compensation and the Agricultural Exemption: An American Tragedy for Farmers and Injured Farmhands*, 4 DRAKE J. AGRIC. L. 491, 500 (1999); *State Workers’ Compensation Websites*, LAWYERS.COM, <http://www.workers-compensation.lawyers.com/State-Workers-Compensation-Websites.html> (last visited Nov. 2, 2012) (listing links to all state workers’ compensation statutes and limitations).

5. Palmer, *supra* note 4, at 500; see also *Whitworth v. Melvin West/West Dairy*, 798 P.2d 228, 231–32 (Okla. Ct. App. 1990) (holding that a state’s workers’ compensation statute was intended to exclude agricultural workers from coverage absent a showing that the employer’s payroll exceeds the jurisdictional amount required to avoid exclusion). *But see* *Wurst v. Friendshuh*, 517 N.W.2d 53, 56 & n.1 (Minn. Ct. App. 1994) (holding that a farm laborer is not an “independent contractor unless he is a commercial bailer or thresher” and that the farm laborer was covered under the state’s worker’s compensation statute).

II. A VIEW THROUGH THE KEYHOLE INTO WORKERS' COMPENSATION

States enacted workers' compensation laws to combat the potential harm posed to all types of employees.⁶ Workers' compensation is a state controlled benefits program designed to recompense workers who are injured in the course of their employment.⁷ The program is designed to be a compromise. Employees agree to forfeit the right to sue their employer for work-related injuries because they know that they have workers' compensation coverage at their disposal to recoup lost wages and medical expenses.⁸ Each state controls how its own workers' compensation program will be conducted, which creates broad variability in statutory language among jurisdictions.⁹ No matter how a states' farm labor exemption is phrased, all exemptions are intended to deny workers coverage if they are injured in the course of agriculturally related employment.¹⁰

Farm labor has traditionally been an integral part of the United States economy. This sector employs over twenty-one million workers annually, which equates to about fifteen percent of the total American workforce.¹¹ The enactment of high-efficiency technology has the potential to narrow the scope of states' farm labor exemptions because farms will no longer use the traditional growing technologies that statutory exemptions have customarily been based upon.¹² Innovative technologies will

6. See Palmer, *supra* note 4, at 493.

7. *Id.* at 497.

8. *Id.* at 498; see *Workers' Comp Basics FAQs*, LAWYERS.COM, <http://www.workers-compensation.lawyers.com/Workers-Comp-Basics-FAQ.html> (last visited Nov. 14, 2012); John Stahl, *A Call For Workers' Compensation Reform - Compromising The Great Compromise: Many Work-Related Disabilities Are Uncompensated*, LEXISNEXIS LEGAL NEWSROOM WORKERS' COMPENSATION LAW (June 27, 2012, 3:34 PM), http://www.lexisnexis.com/community/workerscompensationlaw/blogs/workerscompensationcentennial/archive/2012/06/27/workers-compensation-law-work-related-disabilities-great-compromise-workers_2700-compensation-reform.aspx.

9. ARTHUR LARSON & LEX K. LARSON, *LARSON'S WORKERS' COMPENSATION LAW* § 75.01 (4th ed., Matthew Bender & Company, Inc. rev. ed. 2013) ("[C]onditions limiting agricultural coverage vary widely."); see also Ishita Sengupta & Virginia Reno, *Recent Trends in Workers' Compensation*, 67 SOC. SEC. BULL. 17 (2007).

10. Palmer, *supra* note 4, at 500.

11. *Fast Facts About Agriculture*, AM. FARM BUREAU FED'N, <http://www.fb.org/index.php?fuseaction=newsroom.fastfacts> (last visited Oct. 13, 2013).

12. See *Trends in U.S. Agriculture*, NAT'L AGRIC. STATISTICS SERV., <http://www.nass.us>

require judicial analysis to determine which commercial greenhouse occupations and injuries are exempted from workers' compensation coverage.

A. *What is the Exemption?*

The farm labor exemption is an exception to the general rule that an employee injured in the course of employment is entitled to workers' compensation. The farm labor exemption denies benefits to agricultural workers injured in the course of traditional farming activities.¹³ Larson's Workers' Compensation Law, frequently cited by state courts in workers' compensation matters,¹⁴ explains that "the decisive question is the nature, not of the employer's business, but of the employee's employment" at the time of injury.¹⁵ The Kansas Court of Appeals in *Olds-Carter v. Lakeshore Farms* expanded on Larson's "nature of the employment" consideration by remarking,

The first step is to determine whether the employer was engaged in an agricultural pursuit. If the answer to this question is no, then the court may find that there is coverage. If the answer is yes, then the court proceeds to the second step, which is to determine if the injury occurred while the employee was engaged in an employment incident to an agricultural pursuit. If the answer to that question is also yes, then the employee is not covered by the

da.gov/Publications/Trends_in_U.S._Agriculture/Farm_Population/index.asp (last visited Nov. 16, 2012).

13. See Palmer, *supra* note 4, at 500 (specifying "harvesting crops" as a farming activity); see, e.g., Matthew J. Cimino, Note, *Larsen v. D B Feedyards, Inc: The Supreme Court of Nebraska's Attempt to Apply the Farm or Ranch Laborer Exemption of Nebraska Revised Statutes Section 48-106(2) Sticks Out like a Sore Thumb*, 37 CREIGHTON L. REV. 161, 161-62 (2003) (highlighting "farm or ranch labor" as an exclusion in Nebraska).

14. LARSON'S WORKERS' COMPENSATION LAW, LEXISNEXIS STORE, <http://www.lexisnexis.com/store/catalog/booktemplate/productdetail.jsp?pageName=relatedProducts&productId=10777> (last visited Nov. 14, 2012).

15. LARSON & LARSON, *supra* note 9, §§ 75.01, 75.03; see *Patrick v. Miller*, 440 So.2d 1096, 1097 (Ala. Civ. App. 1983); see also *Union Camp Corp. v. Blackmon*, 270 So.2d 108, 109-10 (Ala. 1972); *Massey v. U.S. Steel Corp.*, 86 So.2d 375, 376 (Ala. 1955); *Wooten v. Roden*, 71 So.2d 802, 805 (Ala. 1954); *Wiregrass Comprehensive Mental Health Clinic, Inc. v. Price*, 366 So.2d 725, 726 (Ala. Civ. App. 1978); *Brown v. Burkett*, 755 P.2d 650, 653 (Okla. 1988); *Page v. Hardy*, 334 P.2d 782, 784-85 (Okla. 1958).

Workers Compensation Act. If the answer to that question is no, then there is coverage.¹⁶

The injured employee must therefore be (1) engaged in an agricultural pursuit and (2) engaged in an employment incident to that agricultural pursuit. Both prongs will be shown to be susceptible to a statutory challenge. Consequently, interpretive variability has previously led some state Supreme Courts and Courts of Appeals to adopt persuasive language and tests from sister jurisdictions to create judicially consistent determinations.¹⁷

III. STATE STATUTORY LANGUAGE: A THEORY OF INTENTIONS

Factual circumstances, such as the language a state used in its farm labor exemption and the responsibilities an employee was engaged in at the time of injury, play a pivotal role when determining whether an agricultural employee is excluded from workers' compensation.¹⁸ These factual circumstances have historically been the basis for denying workers benefits.¹⁹ A farm laborer may be hired to work in a traditionally agricultural capacity, but also complete secondary tasks incident to his primarily agricultural duties. If the worker is involved in a mechanical or transportation capacity at the time of injury, then a court will have to take the facts surrounding the secondary, non-agricultural responsibility into account.²⁰ Thus the interaction between traditionally-based farm labor exemptions and high-

16. *Olds-Carter v. Lakeshore Farms, Inc.*, 250 P.3d 825, 827 (Kan. Ct. App. 2011).

17. *See e.g.*, *JWM, Inc. v. Raines*, 779 So.2d 247, 248 (Ala. Civ. App. 2000) (citing Minnesota cases); *Allstate Ins. Co. v. Freeman*, 443 N.W.2d 734, 770 (Mich. 1989) (citing California cases).

18. *See Dieter v. Lawrence Paper Co.*, 697 P.2d 1300, 1303 (Kan. 1985) (highlighting statutory filing deadlines); *Frost v. Builders Serv., Inc.*, 760 P.2d 43, 45–48 (Kan. Ct. App. 1988) (holding that the language of the state statute provided workers' compensation coverage even when a worker was performing "agricultural employment" at the time of injury); *Whitham v. Parris*, 720 P.2d 1125, 1127 (Kan. Ct. App. 1986) (noting that "agricultural pursuit" was not defined in the state statute).

19. *Palmer*, *supra* note 4, at 498–99.

20. *See Sheahan v. Plagge*, 121 N.W.2d 120, 121–22 (Iowa 1963); *Danker v. Wilimek*, No. 0-421, 2000 Iowa App. LEXIS 94, at *8–12 (Iowa Ct. App. Dec. 13, 2000); *Michael v. Cobos*, 744 S.W.2d 419, 420 (Ky. 1987).

efficiency technology, which is mechanically oriented,²¹ may result in classifying workers outside the scope of many states' exemptions.

This section will cover the breadth of the exemption through analysis of descriptive terms used by state legislatures. It will specifically discuss the terms "agriculture," "soil," and "horticulture" because those terms compose the nucleus of many states' farm labor exemptions. Four interpretive markers will also be examined to properly analyze application of highly efficient agricultural technology to greenhouse employees. Those interpretive markers are: (1) dictionary definitions, (2) the broad language of state statutes, (3) ordinary English usage, and (4) legislative policies. The conjunction of interpretive markers and factual considerations leads to the preliminary understanding that even though greenhouses are categorized as "agricultural pursuits," greenhouse employees are commercial workers outside the scope of many states' farm labor exemptions and therefore eligible for compensation benefits.

A. Dictionary Definitions as a Guide

Common definitions of key terms within state statutes are helpful when determining where the statutory limits of farm labor exemptions exist. State-controlled exemptions govern an overbroad territory, but the comprehensive agricultural language contained within exemption statutes inherently limits their respective scopes.

The term "agriculture" forms the foundation necessary to decipher where those limitations exist. Merriam-Webster defines agriculture as "the science, art, or *practice of cultivating the soil, producing crops*, and raising livestock and in varying degrees the preparation and marketing of the resulting products."²² Similarly, Larson's treatise explains that the term involves "tillage or cultivation of the soil, under natural conditions, with large fields and appropriate farm buildings."²³ A commercial greenhouse

21. See 2G-Cenergy, *High Efficiency Biogas Cogeneration Plant for Dairy Farm in Washington*, AMERICAN DAIRYMEN, <http://www.americandairymen.com/articles/high-efficiency-biogas-cogeneration-plant-dairy-farm-washington> (last visited Nov. 1, 2012).

22. *Agriculture Definition*, MERRIAM-WEBSTER.COM, <http://www.merriam-webster.com/dictionary/agriculture> (last visited Oct. 17, 2013) (emphasis added).

23. LARSON, *supra* note 9, § 75.03.

artificially infused with carbon dioxide, using thermal tanks for optimal temperature manipulation, and an automated hydroponic system does not directly extend from the dictionary definition of agriculture.

Until recently, farmers in the United States have used soil located on large tracts of open land to produce crops one season at a time. Soil is defined as “the upper layer of earth that may be dug or plowed and in which plants grow” or, alternatively, as “a medium in which something *takes hold* and develops.”²⁴ The use of the term “soil” is easily put into question when commercial greenhouses do not use soil on large tracts of land like traditional farms. With commercial hydroponic systems digging and plowing is unnecessary; rather, the plants are placed in pipes fitted with special feeding tubes, which constantly provide the crops with adequate amounts of water, nutrients, and minerals.²⁵

The second part of the definition of soil is harder to dismiss as inapplicable to commercial workers. However, hydroponic farming is by definition “the growing of plants in nutrient solutions *with or without* an inert medium (as soil) *to provide mechanical support*.”²⁶ Hydroponic applications do not unequivocally have the qualities of soil. The solution itself is not a medium because it is usually a liquid mixture that is dripped on or surrounds the plant roots.²⁷ The roots are also often mechanically supported by artificially created components such as rockwool.²⁸ The key is seeing that the definition of “soil” implies that the roots take hold of a traditional soil medium.²⁹ But, with hydroponic

24. *Soil Definition*, MERRIAM-WEBSTER.COM, <http://www.merriam-webster.com/dictionary/soil> (last visited Oct. 17, 2013) (emphasis added).

25. Natural Standard Research Collaboration, *Hydroponic Farming*, NATURAL STANDARD, <http://www.naturalstandard.com/demo/demo-eg-hydroponicfarming.asp> (2013).

26. *Hydroponics Definition*, MERRIAM-WEBSTER.COM, <http://www.merriam-webster.com/dictionary/hydroponic> (last visited Oct. 17, 2013) (emphasis added).

27. See J. Benton Jones, Jr., *Drip Irrigation Hydroponics*, GARDEN & GREENHOUSE, http://www.gardenandgreenhouse.net/index.php?option=com_content&view=article&id=501:hydroponics-101&catid=41:april-2009&Itemid=18 (last visited Oct. 17, 2013); *Overview of Hydroponics*, THE UNIV. OF ARIZ. COLL. OF AGRIC. AND LIFE SCIS., <http://www.ag.arizona.edu/hydroponictomatoes/overview.htm> (last visited Oct. 17, 2013).

28. See Uttam K. Saha et al., *Irrigation Strategies for Greenhouse Tomato Production on Rockwool*, 43 HORTSCIENCE 484, 484 (2008); *Rockwool*, GREENTREES HYDROPONICS, <http://www.hydroponics.net/learn/rockwool.asp> (last visited Nov. 14, 2012).

29. See *supra* note 24 and accompanying text.

systems the component used to brace the roots holds the plant in place.³⁰ It would thus not be appropriate for courts to definitively say that an employee's activities fall within a particular state's farm labor exemption because of the "soil" involved. The rebuttal to this point tracks back to the "science" or "art" of cultivation, but that language traditionally refers only to actual soil – not a hydroponic solution.³¹

Additionally, the term "horticulture" falls within the expansive definition of "agriculture."³² Horticulture is defined as "the science and art of growing fruits, vegetables, flowers, or ornamental plants."³³ Legislative drafters should have considered this term when formulating states' farm labor exemptions. To resolve the applicability and effects of the term "horticulture," we consider *Virginia Lay Lawn Serv. v. Cain*.³⁴ In *Virginia Lay Lawn Service*, the Oklahoma Court of Appeals decided that a lawn care worker who injured his back in the course of his employment should receive workers' compensation.³⁵ Although the employer's business fell within the "broad definition of 'horticulture,'" the court stressed that the defendant's business "was in fact a commercial enterprise for the purpose of lawn care."³⁶ The defendant's business encompassed "mowing lawns, planting grass seed or sod . . . fertilizing, picking up trash, removing rock, and replacing dead bushes."³⁷ Therefore the court found that the character of the claimant's employment had a commercial aspect separate and apart from the horticultural purpose.³⁸

Traditionally, workers such as the lawn care worker-claimant have been characterized as engaged in agricultural

30. See *Hydroponics Growing Medium*, HYDROPONICS AT HOME, <http://www.hydroponics-at-home.com/growing-medium.html> (last visited Nov. 6, 2012).

31. See *supra* note 24 and accompanying text.

32. See *USDA Definition of Specialty Crop*, U.S. DEP'T OF AGRIC., http://www.nifa.usda.gov/funding/pdfs/definition_of_specialty_crops.pdf (last visited Nov. 4, 2012).

33. *Horticulture Definition*, MERRIAM-WEBSTER.COM, <http://www.merriam-webster.com/dictionary/horticulture> (last visited Oct. 17, 2013).

34. *Virginia Lay Lawn Serv. v. Cain*, 868 P.2d 1322, 1323 (Okla. Ct. App. 1994).

35. *Id.* at 1322–24.

36. *Id.* at 1324.

37. *Id.* at 1323.

38. *Id.* at 1324.

pursuits and denied coverage.³⁹ But in this instance, the employee was found not to be subject to Oklahoma's farm labor exemption.⁴⁰ Under *Virginia Lay Lawn Serv.*, a worker's agricultural employment can therefore transform into a "commercial pursuit" when mechanical equipment such as mowers, seeding machines, and fertilizers are used in conjunction with horticulture.⁴¹ This court's holding has the potential to distance commercial greenhouse workers from the nucleus of a state's farm labor exemption when the nature of an employee's responsibilities is coupled with the commercial qualities of high-efficiency technology.⁴²

B. The Breadth and Depth of Statutes

The language in workers' compensation statutes across the United States vary considerably from one jurisdiction to another and can lead to broadly and, conversely, narrowly defined farm labor exemptions.⁴³ In *Dockery v. Thomas*, the Supreme Court of Arkansas stated that because of varied statutory language in states' workers' compensation statutes, "no hard and fast rule can be laid down defining what particular kinds of work are within or without the several statutes."⁴⁴ State legislatures simply determine the breadth of farm labor exemptions however they see fit.⁴⁵

Broad statutory language is highlighted in *Orendorf v. H. Weber & Sons Co.*, where the Maryland Court of Appeals denied a claimant benefits under Maryland's farm labor exemption.⁴⁶ The claimant, a steam pipe fitter, was injured while replacing a steam

39. See, e.g., *Hall v. Pristine Springs, Inc.*, 941 P.2d 1310, 1316 (Idaho 1997) (holding that a worker on a trout farm was "engaged in an agricultural pursuit even when engaged in the construction of raceways").

40. *Virginia Lay*, 868 P.2d at 1324.

41. *Id.*

42. See *Guidelines for Agricultural Classification*, <http://www.qpublic.net/gadsden/docs/AGguidelines.doc> (last visited Nov. 4, 2012) (outlining standard commercial farming practices in Florida to include fertilizing, irrigation, tilling, and harvesting); Dave Darlington, *What is Efficient Agriculture?*, VEGAN ORGANIC NETWORK, <http://www.veganorganic.net/2012/06/what-is-efficient-agriculture> (last visited Nov. 4, 2012) ("[F]arming is getting increasingly [mechanized] and requires less and less [labor].").

43. See, e.g., *JWM, Inc. v. Raines*, 779 So.2d 247 (Ala. Civ. App. 2000); *Dockery v. Thomas*, 295 S.W.2d 319 (Ark. 1956); *Lesperance v. Cooper*, 663 P.2d 1094 (Idaho 1983); *Orendorf v. H. Weber & Sons Co.*, 140 A.2d 641 (Md. 1958).

44. *Dockery*, 295 S.W.2d at 320.

45. See *supra* note 9 and accompanying text.

46. *Orendorf*, 140 A.2d at 641.

pipe in a greenhouse.⁴⁷ The court stated “Maryland’s agricultural exclusion is as broadly phrased as any” as the statute applies to “any employees who, at the time of the accident, are engaged in rendering any agricultural service.”⁴⁸ Many states, such as Indiana⁴⁹ and Delaware have similarly broad constructions.⁵⁰ By broadly stating farm labor exemptions, states guard against the presumption that the interpretive balance favors granting benefits when a factual dispute arises.⁵¹

In contrast, South Carolina adheres to a segmented farm labor exemption.⁵² South Carolina parses the state’s exemption into nine different categories, only two of which mention agricultural workers.⁵³ Where the statute is narrowly tailored, legislatures still avoid becoming too specific.⁵⁴ But, through the continued use of generalities, even with narrowly-defined statutes, agricultural terms that are customary to traditional farming operations may be inferred. This inference could mean that innovative farming technology such as carbon dioxide fertilization, optimal temperature manipulation, and high-efficiency irrigation systems within modern greenhouses place employees in a borderline “commercial” classification and therefore not subject to states’ varying farm labor exemptions.⁵⁵

C. Ordinary English Usage

The ordinary English usage of terminology within states’ farm labor exemptions has considerable descriptive power, which does not cover commercial greenhouse workers. A representative case is *Dost v. Pevely Dairy Co.*, in which the Supreme Court of Missouri held that under an “ordinary usage” analysis the claimant

47. *Id.*

48. *Id.* at 642.

49. See IND. CODE ANN. § 22-3-2-9 (2013) (providing an example of a state’s broad farm labor exemption).

50. See DEL. CODE ANN. tit. 19, § 2307 (2013). *But see* NEB. REV. STAT. § 48-106 (2012) (providing an example of a state’s relatively narrower farm labor exemption).

51. See *e.g.*, *Keefover v. Vasey*, 199 N.W. 799, 799–802 (Neb. 1924).

52. See S.C. CODE ANN. § 42-1-360 (2012).

53. *Id.* Paragraph four covers “agricultural employee[s]” and paragraph six covers persons “engaged in selling agricultural product[s].”

54. See, *e.g.*, *id.*

55. See *supra* note 23 and accompanying text.

was not within the scope of Missouri's farm labor exemption.⁵⁶ In *Dost*, a defendant who operated greenhouses to grow roses attempted to use a workers' compensation statute to limit the recovery of a facility worker who fell while painting a water tank. The question before the court was whether the nature of the work being performed at the time of injury was an agricultural pursuit.⁵⁷ The court stated that the Missouri legislature used a narrow classification of farm labor in its statute.⁵⁸ The court wrote, "Certainly it is also true that customary and ordinary usage does not consider a greenhouse to be a farm, or greenhouse operations as farming or greenhouse work as farm labor."⁵⁹ By focusing on the ordinary usage of the agricultural terminology, the court distanced factual aspects of the worker's employment from the narrow statutory language.⁶⁰

The *Dost* court cited *Hein v. Ludwig*, a Pennsylvania Superior Court case, which stated that "the broader term 'agriculture' did not include greenhouse operations" under their state workers' compensation statute.⁶¹ The *Hein* court focused on the common and ordinary usage of "agriculture" and decided that the fact that plants were products of the soil was not controlling.⁶² The fact that artificial conditions were used to induce plant growth contracted the scope of Pennsylvania's farm labor exemption.⁶³ Since the greenhouse was "artificially heated by means of steam and mechanically watered,"⁶⁴ the claimant's injuries did not fall within the state's farm labor exemption.⁶⁵ Due to the advancement of artificial farming technology, greenhouse employee responsibilities are even further displaced from the common usage of agricultural terminology today than in 1935 when *Hein* was decided.⁶⁶ A stronger argument therefore exists for

56. *Dost v. Pevely Dairy Co.*, 273 S.W.2d 242, 245 (Mo. 1954).

57. *See id.* at 242.

58. *Id.* at 244.

59. *Id.* at 245.

60. *Id.*

61. *Id.* (citing *Hein v. Ludwig*, 179 A. 917, 918 (Pa. Super. Ct. 1935)).

62. *Hein v. Ludwig*, 179 A. 917, 918 (Pa. Super. Ct. 1935).

63. *Id.*

64. *Id.*

65. *Id.* at 919.

66. *See supra* note 2 and accompanying text.

granting workers' compensation benefits to commercial greenhouse workers utilizing high-efficiency technology.

D. Legislative Policies

The social policy arguments attempting to substantiate the enactment of farm labor exemptions have been varied and feeble. There are three primary arguments that proponents use to endorse farm labor exemptions: (1) administrative demands, (2) that farmers cannot pass the costs of coverage onto consumers, and (3) that farmhands simply do not need coverage.⁶⁷ However, proponents of the farm labor exemption have yet to put forth a convincing reason why workers engaged in agricultural pursuits should be drastically disfavored.

The most persuasive justification for the farm labor exemption is the desire to keep administrative demands down.⁶⁸ It makes sense that both exceptionally small and large farms might have difficulty handling the necessary administrative steps of filing workers' compensation claims and retaining up to date information on their employees. However, today farmers have access to national insurance companies with entire digital libraries to help farmers file and track an immense number of claims.⁶⁹

The second argument is that farmer-employers cannot pass price increases on to consumers.⁷⁰ That argument has no persuasive substance because every farm is susceptible to employee injuries and therefore no farm would be at a competitive disadvantage in the market if each state gave farm employees workers' compensation benefits. Agricultural injuries averaged \$65,875 per claim filed in 2007 and 2008,⁷¹ and the agricultural sector composed 21.6% of all recorded amputations between 1992

67. LARSON & LARSON, *supra* note 9, § 75.02.

68. *Id.*

69. *See, e.g.*, OFF. OF THE COMM'R OF INS., STATE OF WIS., A GUIDE TO HEALTH INSURANCE AND WORKER'S COMPENSATION INSURANCE FOR FARM FAMILIES 4, 7 (2008) (explaining that employer-farmers that join an HMO for a workers' compensation insurance policy can expect "minimal" paperwork), *available at* http://www.oci.wi.gov/pub_list/pi-072.pdf; *Oracle Launches Oracle Insurance Claims Adjudication for Health*, ORACLE (Jan. 18, 2012), <http://www.oracle.com/us/corporate/press/1485595> (providing an example of an insurance option that "helps payers reduce administrative costs").

70. LARSON & LARSON, *supra* note 9, § 75.02.

71. NAT'L SAFETY COUNCIL, INJURY FACTS 58 (2011), *available at* http://www.nsc.org/Documents/Injury_Facts/Injury_Facts_2011_w.pdf.

and 1999.⁷² After amputation injures, the most costly injuries include fracture, crush, or dislocation injuries.⁷³ Farm owners purchase insurance to protect themselves against these hefty claims.⁷⁴ A farm owner with only one farmhand has to purchase just enough coverage for that worker, while a large-scale operation will need to purchase enough coverage to cover all their employees. The larger operation's overall increase in cost-per-worker will likely be lower per employee than a solo farmhand operation due to the sheer volume of products they generate⁷⁵ and this pricing equilibrium will apply to all farming operations.⁷⁶ Crop and food prices increase yearly due to energy prices, fertilizer prices, and adverse weather conditions, so farmers arguing they cannot afford to further increase prices has yet to be substantiated.⁷⁷

Another economic consideration is that, with high-efficiency farming methods becoming increasingly implemented, automation will replace traditional human responsibilities.⁷⁸ Automation will lead to greenhouse employers moving away from human capital for more efficient, automatic or robotic crop-attending methods, such as automated drip irrigation for soil moisture control⁷⁹ and potentially even using drones to carry out chores on small farms.⁸⁰

72. JEFFERY D. BROWN, BUREAU OF LABOR STATISTICS, AMPUTATIONS: A CONTINUING WORKPLACE HAZARD 1 (2003), available at <http://www.bls.gov/opub/mlr/cwc/amputations-a-continuing-workplace-hazard.pdf>.

73. NAT'L SAFETY COUNCIL, *supra* note 71, at 58.

74. See Edward J. Priz, *Workers' Compensation 101*, ENTREPRENEUR (Sept. 2, 2005), <http://www.entrepreneur.com/article/79594>.

75. See *Employer-Sponsored Health Insurance and Health Reform*, NAT'L BUREAU OF ECON. RES., <http://www.nber.org/bah/2009no2/w14839.html> (last visited Oct. 18, 2013) (noting that the advantages of economies of scale are biggest with a larger group).

76. See *Specialty Insurance for Farm and Equine Farm Operations*, AGRIBUSINESS DIV., GREAT AM. INS. GRP., <http://www.greatamericaninsurancegroup.com/Insurance/AgriBusiness/Pages/default.aspx> (last visited Oct. 18, 2013) (providing insurance coverage to all "agricultural operations").

77. See *Global Price Trends*, THE WORLD BANK (Apr. 2012), <http://www.siteresources.worldbank.org/EXTPOVERTY/Resources/3369911311966520397/Food-Price-Watch-April-2012.htm>.

78. See, e.g., Michael O'Connor et al., *Automatic Steering of Farm Vehicles Using GPS*, available at http://www.waas.stanford.edu/papers/auto_steer_farm_mlo96.pdf (last visited Oct. 18, 2013) ("Automatic control [over farm vehicles] offers many potential advantages over human control.").

79. Loen New & Roland E. Roberts, *Drip Irrigation for Greenhouse Vegetable Production*, AGGIE HORTICULTURE, <http://www.aggie-horticulture.tamu.edu/greenhouse/hydroponic>

Thirdly, proponents of states' farm labor exemptions contend that farm laborers simply do not need to be protected.⁸¹ The National Safety Council, a congressionally chartered nonprofit that records injuries and accidents,⁸² reported that there were 527 unintentional agriculture-related deaths⁸³ and 110,000 medically consulted agricultural injuries in 2009.⁸⁴ The agricultural sector also ranked twelfth out of the fifteen highest medically consulted employment sectors,⁸⁵ so it is unlikely that there is an influential argument that farm workers should be denied workers' compensation based on either their total number of claims or lack thereof. To differentiate agricultural workers from car mechanics, textile manufacturers, or miners, who are covered by workers' compensation statutes, arbitrarily denies coverage to the very industrial employees most in need of such compensation. Of course agricultural workers still have tort actions to fall back on if they are injured,⁸⁶ but the proponents of the exemption have yet to put forth a substantial reason for differentiating agricultural employment from other types of employment.

E. Determinative Testing & Agricultural Pursuits

Farm labor exemptions vary so much from state to state that courts have employed several considerations to factually determine if an employee was engaged in an agricultural pursuit at the time of injury.⁸⁷ In *Olds-Carter v. Lakeshore Farms*, the court employed the most applicable list of considerations for commercial greenhouse workers.⁸⁸ In *Olds-Carter*, the claimant was a semi-truck driver who lost control of her truck while driving to

s/drip.html (last visited Oct. 18, 2013).

80. Marie Lawrence, *Big Bots in Little Agriculture*, SLATE (June 1, 2012, 9:03 AM), http://www.slate.com/articles/technology/future_tense/2012/06/automated_farm_equipment_and_small_scale_farmers_.html.

81. LARSON & LARSON, *supra* note 9, § 75.02.

82. NAT'L SAFETY COUNCIL, *supra* note 71, at ii.

83. *Id.* at 52.

84. *Id.*

85. *Id.*

86. See Palmer, *supra* note 4, at 498.

87. See, e.g., *Olds-Carter v. Lakeshore Farms, Inc.*, 250 P.3d 825, 831 (Kan. Ct. App. 2011).

88. See *id.*

pick up a load of corn for her employer, Lakeshore Farms.⁸⁹ Lakeshore Farms argued that the claimant's injuries were agriculturally related because "transporting harvested crops is clearly incident to an agricultural pursuit."⁹⁰ The court determined that the claimant was eligible for workers' compensation because she was not involved in an "agricultural pursuit" at the time of injury.⁹¹ The court considered "(1) the general nature of the employer's business; (2) the traditional meaning of agriculture as the term is commonly understood; and (3) . . . unique characteristics" of the business when making its determination.⁹² Those three judicial considerations are crucial to determining whether commercial greenhouse workers fall within broadly defined farm labor exemptions.

IV. APPLICATION TO COMMERCIAL GREENHOUSE TECHNOLOGY

Innovative agricultural technology does not fall neatly within traditional farming definitions or usage. Greenhouse workers injured while operating high-efficiency technology and the by-products thereof can be categorized as "commercial employees" outside the scope of broad farm labor exemptions.⁹³

In this section the three-step *Olds-Carter* agricultural pursuit analysis will be applied to evolving greenhouse technologies. The discussion will begin with an introduction to the concept of intensive specialization of agricultural practices. The section will then cover an example of innovative technology by analyzing General Electric's Jenbacher engines. The Jenbacher discussion will also analyze each of the agricultural by-products the engines generate. This section will conclude with an in-depth look at each by-product to explain why farm labor exemptions should not be applicable to greenhouse employees who utilize advanced farming technology.

89. *Id.* at 828.

90. *Id.* at 830.

91. *Id.* at 832.

92. *Id.* at 831.

93. See Clifford Davis, *Death of a Hired Man—Agricultural Employees and Workmen's Compensation in the North Central States*, 13 S.D. L. REV. 1, 12 (1968).

A. Intensive Specialization

It is indisputable that agricultural practices today have come a long way from the age of Roman aqueducts and oxen-pulled plows. Presently, industrial greenhouse technology is becoming so advanced that highly efficient systems are able to generate multiple growth-inducing by-products from a single fuel source.⁹⁴

Generating such by-products sets high-efficiency greenhouse operations apart from traditional agriculture due to the intensive specialization. The Larson's Workers' Compensation Law treatise states that "sometimes intensive specialization, if carried too far, is enough to transform agriculture to commerce."⁹⁵ Larson's further explains that "since 'agriculture' connotes natural rather than artificial cultivation, the growing of plants in a greenhouse would not of itself fit the concept, but when greenhouses are operated in connection with the cultivation of a large amount of rural land, the work becomes 'farm labor.'"⁹⁶ Therefore, as long as the commercial greenhouse sits on a tract of land devoid of a connected rural-farming operation by the same employer, the intensive specialization of the technology used by the greenhouse can be enough to remove the greenhouse worker's employment from the purview of a state's exemption statute.

As of August 2012, Houweling's Tomatoes ("Houweling"), a family-owned commercial greenhouse operation in southern California,⁹⁷ purchased the first two General Electric Jenbacher engines to use in its greenhouse.⁹⁸ The Jenbachers consist of "two-staged turbocharged natural gas engines and a carbon dioxide fertilization system to provide heat, power and carbon dioxide to

94. Ysabel Yates, *Growing Greener Tomatoes: First US Greenhouse with Onsite CO2 Fertilization*, ECOMAGINATION (Aug. 22, 2012), <http://www.ecomagination.com/ge-power-s-first-co2-capturing-greenhouse-in-us>.

95. LARSON & LARSON, *supra* note 9, § 75.03.

96. *Id.* § 75.03; see *Orendorf v. H. Weber & Sons Co.*, 140 A.2d 641, 642 (Md. 1958).
97. *Our Story*, HOUWELING'S TOMATOES, <http://www.houwelings.com/files-2/about-us.php> (last visited Oct. 18, 2013).

98. See *The Greenest Greenhouse: GE and Houweling's Announce First US Greenhouse with Captured CO2 Fertilization*, GE REPORTS (Aug. 23, 2012), <http://www.gereports.com/the-greenest-greenhouse>.

the 125-acre tomato greenhouse.”⁹⁹ Linden Vulson of *The Earth Times* stated in his welcoming article *First US greenhouse heat and power project with CO2 fertilisation* that “when taking into account the avoided energy needed to externally source the carbon dioxide and recover the water from the exhaust, the overall system efficiency is over 100%.”¹⁰⁰

From a logistical standpoint the implementation of Jenbacher engines has unparalleled potential. By efficiently burning natural gas and then purifying the engine exhaust, the system diverts 21,400 tons of carbon dioxide per year into greenhouses and not the global atmosphere.¹⁰¹ The heat captured from these engines, which produce up to 10.6 megawatts of thermal power, can be stored in thermal storage tanks.¹⁰² The engines also provide 8.7 megawatts of electrical power, and the water condensed out of the exhaust system provides 9500 gallons of water a day for greenhouse irrigation operations.¹⁰³

The by-products of the Jenbacher engines alone might be enough to convince a court that Houweling’s facility is engaged in specialized agriculture. If nothing else, the greenhouse’s artificial nature, in conjunction with the Jenbacher system, should give an Industrial Accident Board pause when making a coverage determination for a Houweling employee or any other employee in a greenhouse that uses Jenbacher technology.

B. Application to High-Efficiency Jenbacher Technology

To apply existing case law to Jenbacher technology, we look to *Scott Paper Co. v. Smith*.¹⁰⁴ The Alabama Court of Civil Appeals in *Scott* said: “Workmen’s compensation statutes must be liberally construed to accomplish their beneficent purposes, and doubts must be resolved in favor of the employee.”¹⁰⁵ The factual circumstances are the crux of the decision-making process used by

99. Linden Volsun, *First US greenhouse heat and power project with CO2 fertilisation*, EARTH TIMES (Aug. 29, 2012, 1:12 PM), <http://www.earthtimes.org/business/first-us-greenhouse-heat-power-project-co2-fertilisation/2149>.

100. *Id.*

101. Yates, *supra* note 94.

102. *Id.*

103. *Id.*

104. *Scott Paper Co. v. Smith*, 600 So. 2d 269 (Ala. Civ. App. 1992).

105. *Id.* at 271 (citing *Riley v. Perkins*, 213 So. 2d 796 (Ala. 1968)).

courts.¹⁰⁶ However, the exemption determination is again subject to the legislative language of the jurisdiction in which the greenhouse employee was injured.¹⁰⁷

Houweling's facility produces tomatoes and cucumbers¹⁰⁸ and it is one of the most state-of-the-art greenhouse operations in the United States.¹⁰⁹ In *Hein v. Ludwig* the Pennsylvania Superior Court remarked, "The fact that plants and flowers raised therein are products of the soil is not controlling, but rather that this is done under artificial conditions in a commercial plant."¹¹⁰ Thus, the farther removed the operation performed within a greenhouse is from traditional practices, the stronger the commercial pursuit contention becomes.¹¹¹ The sustainable specialization of Houweling's facility is so far removed from even modern greenhouse operations that the by-product utilization of Jenbacher technology converts its employees' traditionally agricultural employment into commercial pursuits outside the scope of California's farm labor exemption.

C. By-Product Utilization: An Examination

There are four by-products that the Jenbacher engines generate to sufficiently "specialize" Houweling's operations. Jenbacher engines run purely off of natural gas and create carbon dioxide, heat, electricity, and water.¹¹² Taken as a whole, these four by-products allow the facility to grow substantially more tomatoes in shorter spans of time.¹¹³

First, Houweling can maintain an ideal growing atmosphere by artificially infusing carbon dioxide generated by the Jenbacher engines into the inner atmosphere of the 125-acre

106. See *supra* note 87 and accompanying text.

107. See, e.g., *JWM, Inc. v. Raines*, 779 So. 2d 247 (Ala. Civ. App. 2000); *Dockery v. Thomas*, 295 S.W.2d 319 (Ark. 1956); *Lesperance v. Cooper*, 663 P.2d 1094 (Idaho 1983); *Orendorf v. H. Weber & Sons Co.*, 140 A.2d 641 (Md. 1958).

108. *Varietals*, HOUWELING'S TOMATOES, <http://www.houwelings.com/files-2/our-tomatoes.php> (last visited Oct. 18, 2013); *Our Cucumbers*, HOUWELING'S TOMATOES, <http://www.houwelings.com/files-2/our-cucumbers.php> (last visited Oct. 18, 2013).

109. See *Innovation*, HOUWELING'S TOMATOES, <http://www.houwelings.com/files-2/innovation.php> (last visited Oct. 18, 2013).

110. *Hein v. Ludwig*, 179 A. 917, 919 (Pa. Super. Ct. 1935).

111. See, e.g., *Dost v. Pevely Dairy Co.*, 273 S.W.2d 242, 245 (Mo. 1954).

112. *Yates*, *supra* note 94.

113. See *id.*

greenhouse.¹¹⁴ Second, the heat exchangers and storage tanks permit the tomatoes to grow in optimal temperatures.¹¹⁵ Third, even though Houweling installed an expansive array of solar panels producing one megawatt of electricity,¹¹⁶ the Jenbacher engines create 8.7 megawatts of electricity—enough power to run Houweling’s entire operation so the facility does not have to resort to less efficient electricity sources.¹¹⁷ The sizable production of electricity also allows Houweling to augment the local power grid.¹¹⁸ Fourth, Jenbacher engines can extract water from the engine’s exhaust for Houweling to use in its facilities’ irrigation system.¹¹⁹

Additionally, the court in *Hein v. Ludwig* stated that a greenhouse’s ability to be erected and operated practically anywhere a factory could be was another aspect the court considered when bolstering the commercial pursuit argument.¹²⁰ Whereas traditional large-scale farming operations have been limited to areas of the United States with favorable growing climates,¹²¹ Jenbacher engines allow highly efficient commercial greenhouses to be erected anywhere that has a natural gas connection and employees to maintain production.¹²²

i. Carbon Dioxide Fertilization

To circumvent the farm labor exemption, the most favorable approach is to focus on the *Olds-Carter* “general nature of the business” consideration. This consideration is overbroad

114. *Id.*

115. *See The Greenest Greenhouse, supra* note 98.

116. *Sustainability*, HOUWELING’S TOMATOES, <http://www.houwelings.com/files-2/sustainability.php> (last visited Oct. 18, 2013).

117. *See GE and Houweling’s Tomatoes Unveil the First Greenhouse Combined Heat and Power Project in the US with Carbon Dioxide Fertilization*, BUSINESS WIRE (Aug. 22, 2012, 1:15 PM), <http://www.businesswire.com/news/home/20120822005895/en/GE-Houweling%E2%80%99s-Tomatoes-Unveil-Greenhouse-Combined-Heat>.

118. *Id.*

119. Yates, *supra* note 94.

120. *Hein v. Ludwig*, 179 A. 917, 918 (Pa. Super. Ct. 1935).

121. *See* Peter S. Morris, *Breadbasket of North America*, ENCYCLOPEDIA OF THE GREAT PLAINS, <http://www.plainshumanities.unl.edu/encyclopedia/doc/egp.ii.006> (last visited Nov. 5, 2012).

122. *See* Yates, *supra* note 94.

from an analytical standpoint, so it is necessary to use the determinative approach articulated in *JWM, Inc. v. Raines*.¹²³

In *JWM, Inc. v. Raines*, the claimant was injured while bundling pine trees and nursery stock.¹²⁴ The trial court determined that the claimant was permanently and totally disabled as a result of her injuries and she was consequently awarded benefits.¹²⁵ *JWM*, the employer, contended that Alabama's workers' compensation exemption controlled and that, therefore, the claimant should have been denied benefits.¹²⁶ However, the court cited the liberal determination language used in *Scott Paper Co. v. Smith*.¹²⁷ The court substantiated its decision by reasoning:

Therefore, generally speaking, the employer's business can be agricultural, but if the employee's work is nonagricultural or significantly disassociated from the normal routine of running a farm, the farm laborer exemption will not apply. On the other hand, if the specific employee's work is nonagricultural, but is such an indispensable part of the normal routine of running a farm that the job is not merely incidental to the farming operation, then the farm laborer exemption will apply.¹²⁸

The trial court found no Alabama law to base their decision on, and looked instead to Minnesota's workers' compensation law as persuasive authority.¹²⁹ The court determined that "to be considered a farm laborer, an individual must perform chores typically considered part of operating a farm and must perform those chores on a farm."¹³⁰

123. *JWM, Inc. v. Raines*, 779 So.2d 247 (Ala. Civ. App. 2000).

124. *Id.* at 248.

125. *Id.*

126. *Id.*; see ALA. CODE § 25-5-50 (2013).

127. *JWM*, 779 So.2d at 249 (citing *Scott Paper Co. v. Smith*, 600 So.2d 269 (Ala. Civ. App. 1992)).

128. *Id.* at 248 (quoting *Patrick v. Miller*, 440 So.2d 1096, 1097 (Ala. Civ. App. 1983)).

129. *Id.*

130. *Id.* (quoting *Wurst v. Friendshuh*, 517 N.W.2d 53, 57 (Minn. Ct. App. 1994)).

JWM presents two distinctive scenarios to support its claim that high-efficiency greenhouse employees do not fall within farm labor exemptions. The first is applicable to carbon dioxide fertilization.¹³¹ The greenhouse business itself may be agricultural, but under the influential “character of the work performed” examination, employees can be classified as engaging in commercial pursuits. Commercial greenhouses like Houweling, which employ carbon dioxide fertilization, can be classified as agricultural pursuits in a broad sense.¹³² It does not matter if the greenhouse operators utilize Jenbacher systems, liquid propane generators,¹³³ or bottled delivery systems to introduce carbon dioxide into their greenhouses.¹³⁴ Specialized monitoring of an artificial atmosphere at any commercial greenhouse operation is “significantly disassociated from the normal routine of running a farm”¹³⁵ and thus a commercial pursuit.

In the regular course of running a farm, farmers use natural carbon dioxide concentrations in the atmosphere to induce crop growth.¹³⁶ Due to wind patterns, the incredible amount of energy that would need to be expended, and the price of fuel, infusing the local atmosphere surrounding an expansive farming tract with carbon dioxide would simply be infeasible and is thus not typically associated with an ordinary farm. Consequently, a greenhouse technician in a production control room who strains his back while reaching to adjust the concentration of carbon dioxide being released or a fumigation mechanic who cuts his hand while repairing ductwork that disperses carbon dioxide should receive workers’ compensation benefits. Both employees might work at an agricultural facility, but their significantly disassociated responsibilities remove them from the purview of broadly defined farm labor exemptions.

131. See e.g., *The Greenest Greenhouse*, *supra* note 98.

132. *Id.*

133. See, e.g., *HydroGEN Water Cooled CO2 Generator – Liquid Propane*, ECO ENTERPRISES, <http://www.ecogrow.com/hydrogen-water-cooled-co2-generator-liquid-propane-p-1591.html> (last visited Oct. 18, 2013).

134. See, e.g., *CO2*, THE HYDROPONIC STORE, <http://www.thehydroponicstore.com/pages/CO2.html> (last visited Oct. 18, 2013).

135. *JWM*, 779 So.2d at 248.

136. See, e.g., WILL STEFFEN & PEP CANADELL, AUSTRALIAN GREENHOUSE OFF., DEP’T OF THE ENV’T AND HERITAGE, CARBON DIOXIDE FERTILISATION AND CLIMATE CHANGE POLICY 7 (2005), available at http://www.globalcarbonproject.org/global/pdf/pep/Steffen&Canadell2005_AGO%20ElevatedCO2_29-4-05.pdf.

ii. Optimal Temperature Control

The second by-product Jenbacher engines produce is heat.¹³⁷ Houweling can thus manipulate the greenhouse climate to the optimal temperature required to grow specific types of tomatoes.¹³⁸ Traditional open-atmosphere agriculture forces farmers to determine the best time to plant, fertilize, and harvest.¹³⁹ The traditional farmer is at the mercy of the seasonal climate, but a commercial greenhouse owner does not have to consider weather variability because they are able to grow year round with artificial temperature control. Consistent lighting that increases crop yield can be used to induce photosynthesis, while the temperature is regulated through high-efficiency solar power,¹⁴⁰ geothermal heat,¹⁴¹ or Jenbacher heat exchangers.¹⁴²

In *J & C Poultry v. Reyes-Guzman*, the Georgia Court of Appeals noted that “exclusivity of the employer’s operations may be used to determine whether a worker who performs a non-farming [or farming] function is [or is not] doing work incidental to farming.”¹⁴³ Therefore it appears that intensive specialization, or “exclusivity” as the court in *J & C Poultry* termed it, would allow workers conducting responsibilities sufficiently related to maintaining an optimal growth temperature in commercial greenhouses to receive workers’ compensation benefits.

A facility electrician who falls off the greenhouse roof while re-wiring a solar panel or a Jenbacher mechanic who fractures his forearm while releasing heat from a Jenbacher storage tank should receive coverage. The act of adjusting solar panels and

137. See Yates, *supra* note 94.

138. See *id.*

139. See, e.g., *Last Planting Dates for Second-Season Crops*, THE OLD FARMER’S ALMANAC, <http://www.almanac.com/sites/new.almanac.com/files/Succession-gardening-chart-crop-ped.pdf> (last visited Oct. 21, 2013) (detailing date ranges during which farmers should plant specific crops).

140. Andrew L. Thomas et al., *An Energy-Efficient Solar-Heated Greenhouse Produces Cool-Season Vegetables all Winter Long*, SW. RES. CTR., U. OF MO.-COLUMBIA, <http://www.aes.missouri.edu/swcenter/research/solar-heated%20greenhouse.pdf> (last visited Oct. 21, 2013).

141. Jenna Lewein & Ashley Stucky, *No Winter at Whitewater Gardens Farm: Geothermal Greenhouse project in Altura, MN*, CLEAN ENERGY RESOURCE TEAMS (Aug. 2011), http://www.cleanenergyresourceteams.org/sites/default/files/publication_files/CERTsCaseStudy_SE_Whitewater.pdf.

142. Yates, *supra* note 94.

143. *J & C Poultry v. Reyes-Guzman*, 489 S.E.2d 853, 854 (Ga. Ct. App. 1997) (citing *Culpepper v. White*, 184 S.E. 349, 349 (Ga. Ct. App. 1936)).

operating high-efficiency heat exchangers is so significantly disassociated from what a traditional farming operation consists of that a defendant-employer would have a particularly difficult time convincing a court that the claimant was operating in an agricultural capacity at the time of such an injury.

iii. Electricity: An Unusual Advantage

Jenbacher engines generate electricity for Houweling's 125-acre commercial greenhouse by burning natural gas.¹⁴⁴ Usually electricity is received from a connection to the local power grid or an on-site generator.¹⁴⁵ It is easy to see why the use of Jenbacher electricity would not in and of itself significantly disassociate Houweling from a normal agricultural operation. However, there is one characteristic of Jenbacher technology that distinguishes Houweling's commercial operation from a traditional farm. The efficiency of the Jenbacher engines is so high that Houweling has the capacity to augment its local power grid by selling back excess power.¹⁴⁶ There are likely to be only a select few on-site electrical employees at Houweling. But, the very fact that Houweling has the *ability* to sell back electricity bolsters the "unique business characteristics" argument and further distances some of Houweling's employees from the breadth of states' farm labor exemptions.

iv. Water Reclamation

Modern irrigation systems are disassociated from traditional irrigation methods. Hydroponic irrigation admittedly evolved from the tried and true irrigation ditch, which is by definition "artificial."¹⁴⁷ However, high-efficiency irrigation methods should be considered outside the "traditional meaning of agriculture as the term is commonly understood."¹⁴⁸

144. Yates, *supra* note 94.

145. See generally Ashley Halsey III, *Aging power grid on overload as U.S. demands more electricity*, WASH. POST, Aug. 1, 2012, http://www.washingtonpost.com/local/trafficandcommuting/aging-power-grid-on-overload-as-us-demands-more-electricity/2012/08/01/gJQAB5LDQX_story.html.

146. See *GE and Houweling's Tomatoes*, *supra* note 117.

147. *Irrigation Definition*, MERRIAM-WEBSTER.COM, <http://www.merriam-webster.com/dictionary/irrigation> (last visited Oct. 13, 2013).

148. *Olds-Carter v. Lakeshore Farms, Inc.*, 250 P.3d 825, 831 (Kan. Ct. App. 2011).

The most influential support for removing irrigation workers from the farm labor exemption comes from review of analogous farming activities. The Supreme Court of Arkansas, in *Dockery v. Thomas*, provided an interpretation of the farm labor exemption in reference to crop dusting.¹⁴⁹ Crop dusting can be analogized to both hydroponic drip irrigation and crop misting. In *Dockery*, a pilot was crop dusting an oat field for a client when he crashed and sustained injuries.¹⁵⁰ The claimant's plane was (1) carrying pesticide and (2) spraying it on the oat field at the time of injury; actions that are common to a traditional farm. However, the court determined that the pilot was not within Arkansas' farm labor exemption.¹⁵¹ The court found that, under the circumstances, the claimant was a "'duster pilot,' an occupation that could scarcely be classified as ordinary farm work."¹⁵² The court's language is valuable to show how maintenance duties related to an automated irrigation system that (1) carries nutrients and (2) sprays nutrients on crops could be considered a borderline commercial activity. For example, if an on-site chemist herniates his back while pouring a container of liquid nutrients into a drip-feed dispenser then a non-ordinary farm work argument exists.

In contrast to *Dockery*, in the 2011 case of *Lowe v. Vincent Farms* the Delaware Industrial Accident Board ruled against awarding workers' compensation benefits.¹⁵³ Mr. Lowe was injured while draining an irrigation ditch. His responsibilities on the farm were to regulate the irrigation system, harvest crops, and maintain the farm equipment.¹⁵⁴ Mr. Lowe argued that since he worked as a mechanic a portion of the time, he should receive benefits.¹⁵⁵ The Board found for the employer, Vincent Farms, under Delaware's farm labor exemption and stated that maintaining the irrigation system was a farming activity "crucial to a successful farming operation."¹⁵⁶

149. *Dockery v. Thomas*, 295 S.W.2d 319, 321 (Ark. 1956).

150. *Id.* at 319.

151. *Id.*

152. *Id.* at 319.

153. *Lowe v. Vincent Farms, Inc.*, No. 11A-12-001, 2012 WL 1413580, at *1 (Del. Super. Feb. 23, 2012).

154. *Id.* at *1-2.

155. *Id.*

156. *Id.* at *7.

While irrigation is a typical farming activity, high-efficiency hydroponic methods of irrigation are not.¹⁵⁷ If Houweling was located in Delaware, where 42% of the entire state is classified as farmland,¹⁵⁸ it is very likely that a Jenbacher mechanic who sprained his wrist while activating a hydroponic drip system would be exempt from receiving benefits under the precedent of *Lowe v. Vincent Farms*. The irrigation system is necessary for the greenhouse to operate successfully so the Houweling employee would likely be classified as an agricultural worker at the moment of injury, even though he was hired as a Jenbacher mechanic.

Moreover, the fact the Jenbacher mechanic was not standing in an irrigation ditch, but rather on a production floor, and only turned a valve to control the rate at which the liquid mineral-water mixture dripped onto Houweling's tomato roots would be of no significance.¹⁵⁹

The determination that the mechanic was engaged in an agricultural activity at the moment of injury would be controlling. A high-efficiency irrigation specialist or Jenbacher mechanic who has irrigation duties is not hired to provide services within the traditional meaning of agriculture and thus the worker's technical specialization should categorize them as commercial employees.

V. CONCLUSION

The pivotal shift from traditional to highly efficient farming technology is having an unquestionable impact on the agricultural sector and it is only going to increase in magnitude in the coming years.¹⁶⁰ When present greenhouse technology allows a 150-acre commercial greenhouse to yield as much as a traditional 4,000-acre farm, farm owners will be inclined to substantially invest in both Jenbacher engines and large-scale greenhouses.¹⁶¹

157. See Natural Standard Research Collaboration, *supra* note 25.

158. *Delaware Farm Facts*, DEL. DEP'T OF AGRIC., <http://www.dda.delaware.gov/marketing/forms/FarmFacts.pdf> (last visited Oct. 21, 2013).

159. See *Drip System Operation and Maintenance*, NETAFIM USA, <http://www.netafimusa.com/files/literature/agriculture/other-literature/maintenance/A099-Subsurface-Drip-System-Ops.pdf> (last visited Oct. 21, 2013) (highlighting the need to "monitor" drip irrigation systems regularly and "make adjustments").

160. See, e.g., *Innovation*, *supra* note 109.

161. Yates, *supra* note 94.

Unfortunately, state-structured farm labor exemptions will likely continue to deny many agricultural workers benefits when those workers are injured in the course of their employment. However, unless state legislatures take it upon themselves to amend their broadly constructed farm labor exemptions, the intensive specialization of farming technology and production methods will continue to distance specialized workers from the scope of states' farm labor exemptions.

Furthermore, as the use of innovative methods such as carbon dioxide fertilization, regulation of optimal growing temperatures, and hydroponic irrigation technology continue to be implemented in large-scale greenhouse operations, the argument that those agricultural employees are engaged in "commercial pursuits" is strengthened. Until the proponents of farm labor exemptions put forth a compelling reason for denying workers' compensation to individuals who work at specialized farms such as Houweling's Tomatoes, innovative technology will continue to re-classify traditionally "agricultural" employees as "commercial" employees outside the purview of states' farm labor exemptions.