

ESSENTIALLY DERIVED VARIETY

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Abstract	231
I. Introduction.....	231
II. Background.....	232
III. Defining Predominant Derivation and Essential Characteristics	233
IV. International Case Law	235
V. The International Seed Federation System.....	240
VI. Copyright Law	242
VII. Unfair Competition and Misappropriation.....	246
VIII. Conclusion.....	247

ABSTRACT

Plant variety protection in the United States affords protection to varieties that are essentially derived from a protected variety. Unfortunately, the scope of what constitutes essential derivation is unclear and therefore the protection granted to a derived variety is also unsettled. This uncertainty is due in part to a lack of applicable domestic case law. This article explores relevant international case law and statutes and organizations dedicated to the protection of new varieties of plants for guidance. Additionally, this article considers the use of copyright law and the analogous relationship between essentially derived varieties and derivative works to apply a known law principle to the scope of essential derivation protection.

I. INTRODUCTION

In the United States, plant variety protection extends to essentially derived varieties; however, due to the dearth of case law in the United States, the scope of that protection remains unclear. This article outlines several avenues upon which to lay the foundation for the scope of such protection. The first is based on international case law. The second is based on international organizations. The United States is a member of the International Union for the Protection of New Varieties of Plants (UPOV) that has a goal of providing and promoting an effective

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and internationally harmonized system of plant variety protection;¹ therefore, international sources are instructional to the United States in furtherance of this goal. The third is based on copyright law and the analogous relationship between essentially derived varieties and derivative works. Understanding the scope of essential derivation through the lens of copyright law will allow application of known and understood copyright law principles to effectively handle controversies related to plant variety protection.

II. BACKGROUND

The United States is a member of the UPOV, an international organization with the mission “to provide and promote an effective system of plant variety protection.”² Most countries who are members of UPOV base their national intellectual property structure for plant variety protection (PVP) on the UPOV Convention to further the goal of an effective and internationally recognized system.³ In 1991, UPOV introduced the concept of essentially derived varieties (EDV) to expand the scope of a breeder’s right to a variety that is *essentially derived* from a protected variety.⁴ The goal was to strengthen the breeder’s rights against an unauthorized party making a small change to a variety to get outside of protection, which is considered unfair “free-riding” on the original plant breeder’s efforts.⁵ The United States ratified the revision that was subsequently codified.⁶ EDV is defined in 7 U.S.C. § 2401 as:

(A) In general. The term “essentially derived variety” means a variety that-

(i) is predominantly derived from another variety (referred to in this paragraph as the “initial variety”) or from a variety that is predominantly derived from the initial variety, while retaining the expression of the essential characteristics that result from the genotype or combination of genotypes of the initial variety;

1. INT’L UNION FOR THE PROT. OF NEW VARIETIES OF PLANTS, OVERVIEW OF UPOV (April 28, 2020), <https://perma.cc/YJA5-G9LR>.

2. *Id.*

3. *Id.*

4. Charles Lawson, *Plant Breeder’s Rights and Essentially Derived Varieties: Still Searching for Workable Solutions*, 32 EUROPEAN INTELL. PROP. REV. 499, 499 (2016).

5. *Id.*

6. *See* 7 U.S.C. § 2401 (2018).

2020]

Essentially Derived Variety

233

(ii) is clearly distinguishable from the initial variety;⁷ and

(iii) except for differences that result from the act of derivation, conforms to the initial variety in the expression of the essential characteristics that result from the genotype or combination of genotypes of the initial variety.⁸

Infringement is defined as the unauthorized selling, marketing, importing or exporting, multiplying or propagating, using for production of a hybrid or different variety, and the like, of a protected variety.⁹ The statute then states that infringement protection applies equally to “any variety that is essentially derived from a protected variety, unless the protected variety is an essentially derived variety” giving protection to the breeder of the initial variety, but not allowing a cascading effect.¹⁰ The goal of this revision is to end the practice of slightly altering a successful variety, benefiting from the desirable characteristics of that successful variety, and then escaping infringement.¹¹

III. DEFINING PREDOMINANT DERIVATION AND ESSENTIAL CHARACTERISTICS

The definition of EDV, as provided in the statute, requires an EDV must: 1) be predominantly derived from the initial variety; 2) be clearly distinguishable from the initial variety; and 3) “conform[] to the initial variety in the expression of the essential characteristics that result from the genotype or combination of genotypes of the initial variety.”¹² While neither UPOV nor the United States statute define the key terms “predominant derivation” or “essential characteristics,” the requirement of predominant derivation is generally thought to be a question of genetic *origin*, while the requirement to conform to the essential characteristics is generally thought to be a question of degree of genetic

7. DR. DOUG WATERHOUSE, EXPERIENCE ON ESSENTIALLY DERIVED VARIETIES IN AUSTRALIA 23 (2013) (explaining that a new breed which is not clearly distinct from a protected variety of the same species falls into the scope of protection of that variety).

8. 7 U.S.C. § 2401(4)(A)(iii).

9. 7 U.S.C. § 2541(a) (2018).

10. 7 U.S.C. § 2541(c)(1) (noting a variety that is essentially derived from an EDV need only acquire permission from the breeder of the initial variety).

11. *Plant Variety Protection Act Amendments of 1993: Hearing on S. 1406 Before the Subcomm. on Agric. Research, Conservation, Forestry, and Gen. Legis.*, 103rd Cong. 8 (1993) (statement of Kenneth C. Clayton, Acting Adm’r, Agric. Mktg. Serv, USDA) (“This change, which would be applicable only to varieties protected under S. 1406 and would not apply retroactively, would enable the owner of an “initial” variety to exclude the selling or marketing of varieties that differ only slightly from the initial variety.”).

12. 7 U.S.C. § 2401(a)(3)(A) (2018).

similarity.¹³ Both conformity on the essential characteristics and predominant derivation are possible starting points in proving that a variety might be an EDV, and both require inquiry into genotypic and phenotypic characteristics.¹⁴ Genotypic information will inform the derivation source, but phenotypic information is important for both requirements.¹⁵ Essential characteristics are generally phenotypes, while genotypes are the inherited features of the variety that include its expressed characteristics as a result of genetics.¹⁶ Moreover, phenotypic data is more readily observable than genotypic, and, thus, often inform assessment of predominant derivation.¹⁷

To qualify for PVP rights, the variety must be distinct, uniform, and stable (DUS requirements).¹⁸ What is considered important for distinctness may be informative as to what are considered essential characteristics when it comes to an EDV. UPOV has published recommendations for what should be considered “in relation to the notion of ‘essential characteristics’ . . . [including] characteristics that are important from the perspective of the producer, seller, supplier, buyer, recipient, or user.”¹⁹ Essential characteristics differ among crops and species and are not restricted to those that relate to high performance or value, which could be, for example, disease resistant to susceptible varieties. To harmonize examination, UPOV has developed guidelines for many species listing phenotype characteristics that are considered relevant in assessing distinctness.²⁰ Many distinctness assessments are performed visually. For example, the guidelines on wheat indicate that twenty-seven observable morphological traits be visually noted, such as length of ear, density of ear, and presence or absence of scurs or awns on the ear.²¹

The degree of conformity required between the initial variety and the putative EDV is not defined. However, the language employed in the statute, for example, the terms “conforms” and “predominant” leads to a conclusion that there should be a high degree of similarity between the initial variety and the putative

13. WATERHOUSE, *supra* note 7, at 32, 65, 75.

14. INT’L UNION FOR THE PROT. OF NEW VARIETIES OF PLANTS, EXPLANATORY NOTES ON ESSENTIALLY DERIVED VARIETIES UNDER THE 1991 ACT OF THE UPOV CONVENTION 13 (2017) [hereinafter EXPLANATORY NOTES ON ESSENTIALLY DERIVED VARIETIES].

15. *See id.* at 6.

16. Lawson, *supra* note 4.

17. *Id.*

18. 7 U.S.C. § 2402(a)(2)-(4) (2018).

19. EXPLANATORY NOTES ON ESSENTIALLY DERIVED VARIETIES, *supra* note 14, at 5.

20. INT’L UNION FOR THE PROT. OF NEW VARIETIES OF PLANTS, GUIDELINES FOR THE CONDUCT OF TESTS FOR DISTINCTNESS, UNIFORMITY, AND STABILITY: WHEAT 1 (2017).

21. *Id.* at 9-14.

EDV. The European Community Plant Variety Office has stated there must be a high degree of similarity at the phenotypic level, and the differences should be one, or very few.²² The explanatory notes published by UPOV state “the intention is that a variety should only be essentially derived from another variety when it retains virtually the whole genotype of the other variety.”²³ The guidelines continue to clarify that the derived variety may only “be different from [the initial] variety by a very limited number of characteristics.”²⁴ While these international precepts dictate a great similitude is required, there remains vagueness concerning what characteristics are essential and how far an EDV can vary from an initial variety and still be an EDV.

To shed light on the requirements and scope of the statute, case law is informative. Unfortunately, there are no reported cases in the United States that substantively discuss the definition of EDV, predominant derivation, or essential characteristics, and therefore it is important to investigate foreign resources.

IV. INTERNATIONAL CASE LAW

Due to the dearth of interpretive United States case law discussing EDV, it is informative to look abroad for illumination. One of the goals of UPOV is to provide and promote an effective and internationally harmonized system of plant variety protection;²⁵ therefore, international cases are instructional to the United States as a member of UPOV.

In an early case from the Netherlands, *Van Zanten Plants B.V. v. Hofland B.V.*, it is clear the putative EDV is in fact an EDV.²⁶ The initial variety is a freesia, Van Zanten’s Ricastor, with plant breeder’s rights in the Netherlands.²⁷ The evidence supplied by Van Zanten showed no genetic difference between Ricastor and the putative EDV, Hofland’s Mercurius.²⁸ The DNA test showed no genetic difference, and the Amplified Fragment Length Polymorphism (AFLP)²⁹ profiles

22. See BART KIEWIET, *ESSENTIALLY DERIVED VARIETIES* 3 (European Union, Cmty. Plant Variety Office ed., 2006).

23. EXPLANATORY NOTES ON ESSENTIALLY DERIVED VARIETIES, *supra* note 14, at 13.

24. *Id.* at 6.

25. INT’L UNION FOR THE PROT. OF NEW VARIETIES OF PLANTS, *REPORT ON THE IMPACT OF PLANT VARIETY PROTECTION* 11-12 (2005).

26. See CMTY. PLANT VARIETY OFF., *REPORT OF THE AD HOC LEGAL WORKING GROUP TO THE ADMINISTRATIVE COUNCIL* 27-28 (2015).

27. *Id.*

28. *Id.*

29. *Ovidiu Paun & Peter Schönschwetter, Amplified Fragment Length Polymorphism (AFLP): An Invaluable Fingerprinting Technique for Genomic, Transcripomic, and*

had a Jaccard³⁰ coefficient of 1.0, indicating complete similarity between the varieties.³¹ Further, the phenotype differences were considered minor, with thirty-eight out of thirty-nine important morphological characteristics identical.³² Notably, Hofland neither supplied a counter analysis, nor had an explanation for the high degree of genetic similarity.³³

A seminal case, also from the Netherlands, is *Danziger “Dan” Flower Farm v. Astée Flowers BV* where the Appeal Court of the Hague ruled Astée’s gypsophila cultivar, Blancanieves, did not infringe on the variety Dangypmini, but was a completely new independent variety.³⁴ To come to this conclusion, the court criticized the use of AFLP as evidence of genetic conformity, stating the markers were correlations of similarity rather than evidence of actual similarity.³⁵ In this case, each party provided their own evidence of AFLP procedures with different Jaccard indices.³⁶ Due to the discrepancies, the court found this statistical method open to objection and insufficient as compared to whole genome sequencing.³⁷ The court then considered morphological and phenotype data.³⁸

The court considered seventeen morphological differences between Blancanieves and Dangypmini examined by the Community Plant Variety Office (CPVO)³⁹ during the registration process.⁴⁰ The CPVO found the differences to

Epigenetic Studies, in 862 PLANT DNA FINGERPRINTING & BARCODING, METHODS IN MOLECULAR BIOLOGY 75-87 (2012) (explaining that Amplified Fragment Length Polymorphism (AFLP) Analysis is a technique used to detect polymorphisms in DNA. A subset of DNA fragments is subjected to polymerase chain reaction (PCR) amplification and visualization. A benefit to AFLP is the speed with which the technique can generate large numbers of marker fragments without the need for sequence data).

30. Stephanie Glen, *Jaccard Index/Similarity Coefficient*, STATISTICS HOW TO: STATISTICS FOR THE REST OF US! (Dec. 2, 2016), <https://perma.cc/S3G5-R5KN> (explaining the Jaccard coefficient is a statistic used to gauge the similarity and diversity of data sets. In simplistic terms, the Jaccard coefficient is calculated by dividing the number of times that a marker occurs in both varieties by the number of times that a marker occurs in either one of the two varieties).

31. See CMTY. PLANT VARIETY OFF., *supra* note 26, at 27-28.

32. Lawson, *supra* note 4.

33. CMTY. PLANT VARIETY OFF., *supra* note 26, at 28.

34. *Id.* at 29-30.

35. *Id.*

36. *Id.* at 29.

37. *Id.*

38. *Id.* at 29-30.

39. *Id.* (explaining that the Community Plant Variety Office (CPVO) manages the European Union system of plant variety protection for the twenty-eight member nations).

40. *Id.* at 30.

exceed the threshold of “one or a few inheritable characteristics” required for a finding of essential derivation.⁴¹ The court agreed with the CPVO that the morphological differences were enough to conclude that Blancanieves is not an EDV.⁴² Important takeaways from this case are: 1) phenotypic data can be the basis for decision; 2) in Europe there must be very few differences between the varieties for one to be an EDV of the other; and 3) what are considered important phenotypic characteristics overlap with what the plant protection office uses to assess distinctness.⁴³

One interesting aspect of the *Danziger* case is that it was also tried in Israel with a different outcome.⁴⁴ Under Israeli law, the burden of proof lies with the defendant to establish that the variety in question is not an EDV if the plaintiff establishes evidence of genetic conformity.⁴⁵ Therefore, the Israeli court rejected the argument that only morphological characteristics be considered and accepted as AFLP evidence of the plaintiff.⁴⁶ Moreover, the court interpreted the EDV threshold as not limited to one trait or a small number of morphological traits.⁴⁷ With identical data regarding the varieties, the Israeli court concluded Blancanieves was an EDV.⁴⁸ Clearly, the EDV threshold, as well as who bears the burden of proof, can be decisive. In the Court of Appeals in the Hague, the evidence produced by *Danziger* was not sufficient to shift the burden of proof to Astée, but it was for the Israeli court, leading to opposing outcomes.⁴⁹ It should be noted that the threshold for burden-shifting in Israel appears to be uniquely low because the CPVO holds “it must be understood that it is the holder of the initial variety who must demonstrate that another variety is derived from his variety in case of dispute.”⁵⁰

In the German case *Probstdoder Saatzucht GmbH & Co. KG v. Pflanzzucht Oberlimpurg*, the owner of one protected variety accused a second protected variety as being an EDV because tests revealed no genetic differences, suggesting

41. *Id.*

42. *Id.*

43. *See id.* at 29-30.

44. *See id.* at 28-29 (noting the *Danziger* variety was registered in Israel, while the putative EDV was registered in the European Union as well as in Israel. The putative EDV was owned by a company in the Netherlands and grown in Israel under license).

45. *Id.* at 28.

46. *Id.* at 28-29.

47. *Id.*

48. *Id.*

49. *Id.* 28-30.

50. E.g. KIEWIET, *supra* note 22, at 3.

a very close genetic relationship.⁵¹ Subsequent court-appointed analysis using microsatellite markers showed a genetic similarity of 99% between the two varieties.⁵² Based on this evidence, the court concluded the second variety was an EDV.⁵³ The defendant then appealed, challenging the decision based on the court's failure to consider phenotype data.⁵⁴ Unfortunately, this case was dropped when the parties settled.⁵⁵ One interpretation of this case that squares with the *Van Zanten* case is that in the face of evidence showing zero or very few genetic differences, evidence must be provided by the defendant to explain the high degree of genetic similarity.⁵⁶ Otherwise, there is an incontestable EDV.

In *Almo s.p.a. v. Sardo Piemontese Sementi soc. Coop. Sociata Agricola* out of Italy, one protected rice plant was accused of being essentially derived from a first protected rice plant, but with an additional trait of resistance to certain herbicides for which it was cross-bred.⁵⁷ The court-appointed expert analysis found that twenty-one out of twenty-five genetic markers were inherited from the first rice variety.⁵⁸ The court then identified the relevant and essential characteristics of rice as grain type, vegetative cycle duration, productive capacity, yield, and resistance to herbicides.⁵⁹ The court found the two varieties shared all the listed essential characteristics and that the second rice variety was an EDV.⁶⁰ According to this court, when a breeder takes a successful variety and introduces a single gene for herbicide resistance, that satisfies the threshold for an EDV.⁶¹

Uniquely, legislation in Australia includes a definition of essential characteristics as “heritable traits . . . that contribute to the principal features, performance or value of the variety.”⁶² Australia's statute also defines an essentially derived variety as one that “does not exhibit any important (as distinct from cosmetic) features that differentiate it from that other variety.”⁶³ If the

51. CMTY. PLANT VARIETY OFF., *supra* note 26, at 30.

52. *Id.*

53. *Id.*

54. *Id.*

55. *Id.*

56. *Id.*

57. KMALESH ADHIKARI & DAVID JEFFERSON, CHALLENGES AND DEVELOPMENTS IN ASIA (2019).

58. *Id.*

59. *Id.*

60. *Id.*

61. *See id.*

62. Plant Breeder's Rights Act 1994 of Australia, Part 1.3(1), 1994.

63. Plant Breeder's Rights Act 1994 of Australia, Part 1.4(c), 1994.

putative EDV can be differentiated in any one important way, then it is not an EDV. “Cosmetic” is interpreted in the context of the species.⁶⁴ For example, color would be cosmetic and unimportant for some species, like wheat, but important for others, like a flower.⁶⁵

Australian case law is instructive. In *Sir Walter v. B12*, B12 is a lawn grass variety bred using Sir Walter as the initial variety.⁶⁶ Two characteristics that differ between the two are color and the length between the stalk and leaves (the “internode”).⁶⁷ Evidence demonstrated that the shortened internode of B12 is important because it increases the wear tolerance of B12, a feature desirable for commercial use, for example, on a golf course.⁶⁸ B12 was not found to be an EDV.⁶⁹ A couple of years later, a variety called Kings Pride was accused of being an EDV of Sir Walter.⁷⁰ To rebut that claim, the breeder of Kings Pride asserted, with DNA analysis as evidence, that Kings Pride’s parental variety was Shademaster, also the parent of Sir Walter.⁷¹ Therefore, Kings Pride was proven to be predominantly derived, not from Sir Walter, but from Sir Walter’s parent.⁷² The breeder also provided evidence that Kings Pride has comparatively stronger plant vigor, longer internode length, and longer stolon length than Sir Walter.⁷³ Stolon length is considered important for density and thatch; therefore, Kings Pride differs from Sir Walter in an important way.⁷⁴ Because the evidence showed Kings Pride was neither predominantly derived from, nor conformed to the essential characteristics of Sir Walter, Kings Pride is not an EDV of Sir Walter.⁷⁵

The UPOV introduced the concept of the EDV in 1991,⁷⁶ but the dearth of reviewed cases since then leads to difficulty in drawing clear and effective conclusions. There seems to be no consensus regarding genetic analysis techniques nor the number of characteristics in which a putative EDV may differ from an initial variety and still be considered essentially derived. It does seem generally

64. *Id.*

65. WATERHOUSE, *supra* note 7, at 53.

66. *See id.* at 54.

67. *Id.* at 54-55.

68. *Id.*

69. *Id.*

70. *Id.* at 56-57.

71. *Id.*

72. *Id.*

73. *Id.*

74. *Id.*

75. *Id.*

76. CMTY. PLANT VARIETY OFF., *supra* note 26, at 25.

accepted, however, that once the breeder of the initial variety shows a *very high* genetic similarity, the burden of proof should shift to the EDV breeder.⁷⁷

V. THE INTERNATIONAL SEED FEDERATION SYSTEM

The International Seed Federation (ISF) operates with the mission to create a global environment that promotes innovation in seed and plant breeding.⁷⁸ As a part of that work, ISF provides for dispute resolution through mediation, conciliation, or arbitration.⁷⁹ ISF has adopted arbitration procedures and rules specifically tailored for the technical and legal aspects of essential derivation, which may inform the American legal system.⁸⁰ The ISF system is crop-specific and contains a molecular threshold for the possible reversal of the burden of proof from the breeder of the initial variety to the breeder of the EDV.⁸¹ The initial burden of proof lies with the breeder of the initial variety to prove another similar variety is an EDV.⁸² ISF acknowledges that while testing genetic and phenotypic similarity is relatively easily accomplished by the claimant, proving predominant derivation may be more difficult.⁸³ Therefore, ISF posits it is reasonable and fair—in a case where a variety is very similar to an initial variety—to shift the burden of proof to the breeder of the similar variety to prove it is not an EDV, but instead derived from another variety.⁸⁴ For example, a variety may have been derived from another, older, possibly non-protected variety, and yet is genetically close to the initial variety and phenotypically similar. The putative EDV in that instance may appear to be an EDV of the initial variety but is in fact not. The breeder of the putative EDV is the party in the best position to prove or dispute from where the putative EDV is predominantly derived after the breeder of the initial variety proves genetic and phenotypic similarity.

ISF employs crop-specific thresholds, measured as the genetic distance between varieties, above which the breeder of the putative EDV must then

77. *See e.g. id.* at 38.

78. *About: What We Do*, INT'L SEED FED'N, <https://perma.cc/VP9B-Y4XB> (archived Aug. 13, 2020).

79. *Id.*

80. *See* INT'L SEED FED'N, EXPLANATORY NOTES: REGULATION FOR THE ARBITRATION OF DISPUTES CONCERNING ESSENTIAL DERIVATION (RED), <https://perma.cc/V4S9-YXYZ> (archived Aug. 13, 2020).

81. *Id.*

82. *Id.*

83. *See id.*

84. *Id.*

demonstrate their variety is not an EDV.⁸⁵ Crop-specific protocols are necessary due to the varied crop diversity and breeding approaches.⁸⁶ ISF has guidelines and protocols for “perennial ryegrass, maize, oilseed rape, cotton and lettuce and brown mushrooms.”⁸⁷ To develop the protocols, ISF chooses crops with a good reference population in which to assess genetic diversity.⁸⁸ ISF then identifies genetic markers that are freely available and meet several technical criteria.⁸⁹ For example, ISF has investigated three lettuce types: thirty-five varieties of Greenhouse Heated, twenty-one varieties of Field Summer, and twenty-seven varieties of Iceberg.⁹⁰ The study included the most widely commercialized varieties, as well as some additional varieties to allow for maximum variation, and Jaccard indices were then calculated.⁹¹ For lettuce, it was determined a Jaccard index of 0.96 would be an appropriate threshold, above which two varieties are similar enough to shift the burden of proving predominant derivation to the breeder of the putative EDV.⁹²

ISF developed a ryegrass threshold using simple sequence repeats (SSR) to analyze commercial varieties and settled on a Jaccard similarity of 0.6.⁹³ For maize, ISF uses industry agreed upon sets of SSRs to define thresholds to determine if there has been predominant derivation.⁹⁴ Ninety percent or greater similarity is a strong indication of derivation; 83%-89% similarity indicates other criteria should be evaluated to determine derivation; and below 82% similarity points toward no predominant derivation.⁹⁵ In the first two tiers of similarity, the

85. *Id.*

86. *See id.*

87. *ISF’s Trade Rules Bring Clarity and Consistency to Contractual Relations between Buyers and Sellers of Seed for Sowing Purposes*, INT’L SEED FED’N, <https://perma.cc/KF4C-LVKJ> (archived Aug. 13, 2020).

88. *See The ISF Approach and a Case Study to Help Determine EDV Status*, INT’L SEED FED’N (Oct. 22, 2013), <https://perma.cc/755N-8EBA>.

89. *See id.*

90. *Guidelines for the Handline of a Dispute on Essential Derivation in Lettuce*, INT’L SEED FED’N (2004), <https://perma.cc/VNZ8-6P97>.

91. *Id.*

92. *Id.*

93. *Guidelines for the Handline of a Dispute on Essential Derivation in Ryegrass*, INT’L SEED FED’N (2009), <https://perma.cc/M4F3-ZRNK>.

94. *See Guidelines for the Handline of a Dispute on Essential Derivation of Maize Lines*, INT’L SEED FED’N (2014), <https://perma.cc/SWF3-89GN>.

95. *See id.*

burden shifts to the putative EDV breeder to prove it is not predominantly derived from the initial variety.⁹⁶

Because the ISF system for dispute resolution related to essential derivation is established for only a select variety of plants, its reach is limited. Thus, it might be helpful to frame the concept of EDV using the language of copyright law and that of derivative works.

VI. COPYRIGHT LAW

The notion of derivation, specifically what constitutes a derivative work, is pervasive in copyright law. It may be informative to plant variety protection, and specifically the concept of EDV, to look to copyright law for correlative arguments and reasoning because the rules on the scope of plant variety protection track the rules on copyright. Arguments over EDV are similar to the copyright distinction between unauthorized derivative works and transformative fair use.

Like PVP laws, the goal of copyright law is based on utilitarian concepts and that of fairness and justice. The UPOV states its purpose is “to provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society.”⁹⁷ Similarly, copyright protection incentivizes the creation of new works by stimulating “artistic creativity for the general public good.”⁹⁸ Moreover, EDV protection was prompted by concern with some breeding methods that result in differences in characteristics of minor importance relative to the initial variety.⁹⁹ The undesirable behavior of breeding plants with minimal differences to an initial variety is considered “plagiarism,” a copyright-adjacent term.¹⁰⁰ Both systems, copyright and PVP rights, function to protect creators of original works and disincentivize copying.¹⁰¹

To gain plant variety protection, the variety must be distinct, uniform, and stable.¹⁰² In this way, the DUS requirements parallel the originality requirement of copyright law that the work be fixed, independently created by an author, and

96. *Id.*

97. INT’L UNION FOR THE PROT. OF NEW VARIETIES OF PLANTS, UPOV PRESS RELEASE 112 (Oct. 26, 2017).

98. *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975).

99. *See WATERHOUSE*, *supra* note 7, at 9-10.

100. *Id.* at 9.

101. *Id.* at 9-10; *see e.g. Aiken*, 422 U.S. at 156.

102. *WATERHOUSE*, *supra* note 7, at 23.

contain a minimal amount of creativity.¹⁰³ Under the United States system of copyright law, preparing derivative works based upon a copyrighted work is an exclusive right that belongs to the owner of the copyright.¹⁰⁴ A derivative work is one based on a pre-existing work, like a revision, modification, dramatization, or abridgement.¹⁰⁵ The derivative work refers to the work as a whole, and not just the modified parts.¹⁰⁶ Similarly, creating an EDV is the right of the breeder of the initial variety because an EDV is based on modifying a pre-existing variety and is evaluated as a whole, while carefully reviewing the importance of the modified parts.

Moreover, any copyright protection in a derivative work only extends to the new material and is independent of the scope of the copyright protection of the underlying original work.¹⁰⁷ The copyright owner of the derivative work does not have any rights in the preexisting original material.¹⁰⁸ Likewise, the owner of an EDV cannot stop the breeding of subsequent derived varieties; only the owner of the initial variety has that right.¹⁰⁹

Additionally, PVP infringement provisions function much like anti-copying rules. PVP infringement is defined as unauthorized use, like production, reproduction, or producing “a hybrid or different variety therefrom.”¹¹⁰ Similarly, in copyright law, creating a derivative work is the exclusive right which belongs to the owner of the copyright.¹¹¹ “To prove copyright infringement, a copyright [owner] must establish a valid copyright” in a work and that the “original material was used illegally.”¹¹² Generally, to prove unauthorized copying, “the copyright holder must show the copying party had access to the original work and the two works are substantially similar.”¹¹³ This parallels the protection given to the

103. UNITED STATES COPYRIGHT OFFICE, COPYRIGHT BASICS 1, <https://perma.cc/4ZD2-72BX> (archived Aug. 13, 2020).

104. 17 U.S.C. § 106 (2018).

105. UNITED STATES COPYRIGHT OFFICE, COPYRIGHT IN DERIVATIVE WORKS AND COMPILATIONS 1, <https://perma.cc/8LPS-FYU2> (archived Aug. 13, 2020).

106. *See id.*

107. *Id.* at 2.

108. 17 U.S.C. § 103(b) (2018).

109. *See* 7 U.S.C. § 2541(b), (c)(1) (2018) (explaining that a variety that is essentially derived from an EDV need only acquire permission from the breeder of the initial variety).

110. *Id.* § (a)(4).

111. *See* 17 U.S.C. § 106 (2018).

112. Louis Kroeck, *How to Prove Copyright Infringement*, CHRON, <https://perma.cc/5XWS-KEYL> (archived Aug. 13, 2020).

113. *Id.*

owners of an initial variety covered by PVP with regard to a putative EDV. The owner of an initial variety must show predominant variation, which is analogous to copying and conformity to the essential characteristics, which is analogous to substantial similarity.¹¹⁴

Copyright infringement, therefore, may inform EDV analysis. The first element of proving copyright infringement—the ownership of a valid copyright—is easily applied to an EDV argument.¹¹⁵ The owner of the initial variety must prove ownership of the initial variety and that the initial variety in question is not itself a derived variety.¹¹⁶ The second element—copying of protected elements of the copyrighted work—is not as straightforward.¹¹⁷ Absent evidence of direct copying, proving infringement involves fact-based evidence that the accused had access and the two works are substantially similar.¹¹⁸ Substantial similarity is analogous to the required conformation to essential characteristics for an EDV.

Some courts, like the Ninth Circuit, link substantial similarity to access.¹¹⁹ These courts require a lower standard of proof of similarity when a high degree of access is shown.¹²⁰ At the same time, there are instances when the works “are so overwhelmingly identical that the possibility of independent creation is precluded.”¹²¹ Similarly, the Seventh Circuit finds that with a lack of evidence of access, access can be inferred if the two works are strikingly similar.¹²² From this, an EDV argument may be grounded in the fact that the more similar the genotypic data, the fewer phenotypic similarities are required regarding essential characteristics. Or, if the phenotypic data is essentially the same, the burden of proof is lower for requiring extensive genotypic data.

Copyright law’s infringement regime coexists with a traditional fair use doctrine and PVP infringement provisions are subject to similar infringement exemptions. PVP systems allow parties to use PVP-protected seed for “acts done privately and for non-commercial purposes, . . . acts done for experimental

114. See, e.g., Lawson, *supra* note 4; Kroeck, *supra* note 112.

115. See Kroeck, *supra* note 112.

116. See generally CMTY. PLANT VARIETY OFF., *supra* note 26, at 42.

117. See Kroeck, *supra* note 112.

118. See generally *id.*

119. See, e.g., Funky Films, Inc. v. Time Warner Ent. Co., 462 F.3d 1072, 1076, 1081 (9th Cir. 2006).

120. *Id.* at 1081.

121. Unicors, Inc. v. Urban Outfitters, Inc., 853 F.3d 980, 985, 987 (9th Cir. 2017) (quoting Twentieth Century-Fox Film Corp., v. MCA, Inc., 715 F.2d 1327, 1330 (9th Cir. 1983)).

122. Selle v. Gibb, 741 F.2d 896, 900 (7th Cir. 1984).

purposes and . . . acts done for the purpose of breeding other varieties.”¹²³ Factors similar to those used to evaluate fair use may be used to carve out exemptions for use of initial varieties.¹²⁴

Fair use is a statutory exemption, meaning it is not infringement.¹²⁵ Protection of this type of use is grounded in an equitable principle that furthers the utilitarian purposes of copyright law and allows for more works created and available to the public.¹²⁶ The idea of fair use was used by courts that recognized too strict of an application of the copyright law may hinder its very purposes by obstructing the dissemination of knowledge, which copyright promotes.¹²⁷ Fair use was codified in 1976.¹²⁸ The factors in the statute which must be used in determining whether the use is fair are “(1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes; (2) the nature of the copyrighted work; (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copyrighted work.”¹²⁹ The burden is on the defendant to prove fair use.¹³⁰

The most important factors are sometimes considered to be (1) and (4).¹³¹ For example, in *Harper & Row v. Nation Enterprises*, the Court found the unauthorized publication of a small portion of a memoir was not fair use.¹³² First, the purpose and character of the use was considered by the Court to be merely “scooping” an article scheduled to appear in *Time Magazine*.¹³³ Second, the commercial effects of the use against the plaintiff were severe because *Time Magazine* had purchased exclusive rights to print prepublication excerpts from the copyright owner, Harper & Row Publishers, and the project was cancelled due to the publication by the defendant.¹³⁴ Even though the amount published was only a

123. International Convention for the Protection of New Varieties of Plants, Dec. 2, 1961 as amended Mar. 19, 1991, art. 15(l)(ii)-(iii).

124. *See, e.g.*, 17 U.S.C. § 107 (2018).

125. ALAN LATMAN, FAIR USE OF COPYRIGHTED WORKS, S. Res. 240, 5-6 (1958).

126. *Id.* at 7.

127. *See id.*

128. *See* UNITED STATES COPYRIGHT OFFICE, *supra* note 105.

129. 17 U.S.C. § 107 (2018).

130. *See* *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 590 (1994).

131. *See, e.g.*, *Harper & Row, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 566 (1985).

132. *Id.* at 569.

133. *Id.* at 561-63.

134. *Id.* at 567.

small portion of the work, and, therefore, factor (3) weighed in favor of the defendant, factors (1) and (4) were considered more important.¹³⁵ In fact, the Court stated that the effect of the use upon “the potential market for or value of the copyrighted work . . . is undoubtedly the single most important element of fair use.”¹³⁶ Additionally, the Court noted that properly applied “[f]air use . . . is limited to copying . . . which does not materially impair the marketability of the work which is copied.”¹³⁷

Fair use factors, particularly factors (1) and (4) can be used to carve out exceptions to infringement for EDV.

VII. UNFAIR COMPETITION AND MISAPPROPRIATION

Another theory upon which to ground an EDV argument is one of unfair competition and misappropriation, and the EDV concept has undertones of each.¹³⁸ For example, one goal of the EDV provision is “to promote continued investment’ in plant breeding and ‘discourage unfair or parasitical activities without discouraging improvement breeding.”¹³⁹ The common law tort of misappropriation may be logical to use where liability is allocated based on whether the EDV breeder has inflicted an injury on the breeder of the initial variety and if withholding liability would undermine the system’s incentives.¹⁴⁰ This is a type of sweat-of-the-brow theory of liability that may work as an incentive because the EDV provision is meant to discourage free-riding.¹⁴¹

Generally, an unfair competition model makes sense where the innovation cost is high, but the cost of copying is low. Encouraging an unfair competition regime with regard to PVP would allow a remedy to be made available when the plant breeder of the initial variety can satisfy criteria reflecting the commercial value of the variety. The initial variety’s value might be proven by evidence of a substantial expenditure of financial resources or time, or by agronomic value.

135. *See id.* at 564-66.

136. *Id.* at 566.

137. *Id.* at 566-67.

138. *See generally* Mark D. Janis & Stephen Smith, *Technological Change and the Design of Plant Variety Protection Regimes*, 82 Chicago-Kent L. Rev. 1557, 1610 (2007).

139. *Id.* at 1611.

140. *See, e.g., id.* at 1609.

141. *See* Lawson, *supra* note 4.

2020]

Essentially Derived Variety

247

VIII. CONCLUSION

Navigating the arguments surrounding whether a plant variety is essentially derived from another variety can be informed by international statutes, case law, and organizations, and effective parallels may be drawn from copyright law.