

# PROPOSING A LONG-TERM SOLUTION TO A THREE-PART AMERICAN MESS: U.S. AGRICULTURE, ILLEGAL LABOR, AND HARVEST MECHANIZATION

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I. Introduction .....	360
II. The U.S.'s Problematic History with Guest Worker Programs.....	362
A. The Early Years of Immigration, the Bracero Program (1942-1964), and the H-2 Program (1952-1986) .....	362
B. The Immigration Reform and Control Act (1986) .....	364
III. Problems with Guest Worker Programs .....	366
A. Guest Worker Programs Encourage Legal and Illegal Immigration and Cause Permanent Settlement .....	366
B. Guest Worker Programs Cause Economic Distortion.....	367
C. Guest Worker Programs Discourage Investment in Research and Development of Agricultural Mechanization .....	369
IV. Mechanizing the Agricultural Sector.....	372
A. What is Agricultural Mechanization?.....	372
B. The Practical Problems of Mechanization.....	375
C. The Potentials in Mechanization .....	377
D. The Risk of Failing to Mechanize .....	380
V. Proposing Change: The Need for a Long-Term Solution .....	382
A. Mechanizing Agricultural Production and Restoring the Domestic Farm Worker Base .....	382
B. Dealing with Farmers' Needs and Illegal Immigration.....	384
1. Controlling the Supply of Illegal Immigrant Workers .....	384
2. Helping Farmers Verify the Status of Their Workers .....	386
3. Improving Conditions on Farms and Protecting Workers' Rights .....	387
VI. Conclusion .....	388

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1. J.D. Drake University Law School, 2007.

## I. INTRODUCTION

“Our nation needs an immigration system that serves the American economy, and reflects the American Dream,” stated U.S. President George W. Bush in a January 7, 2005 press conference at which he proposed massive immigration reform,<sup>2</sup> including “a new temporary worker program to match willing foreign workers with willing U.S. employers when no Americans can be found to fill the jobs.”<sup>3</sup> President Bush’s proposal could not have been timelier, as debate over the future of illegal immigrants was featured on television and in newspapers throughout the country.<sup>4</sup> As a result, Americans are very aware of statistics regarding the presence of illegal immigrants in the U.S.<sup>5</sup> Further, the number of illegal immigrants in the U.S. continues to rise at a rate of 500,000 per year.<sup>6</sup>

Media exposure of powerful statistics such as these is just one of the many reasons Americans are so insistent upon immigration reform. Immigration experts say immigration reform has become such an emotional topic for Americans due to “a string of events that include demographic changes nationwide, federal policies, the attacks of Sept. 11, 2001, a recently unsteady economy, and public and governmental reaction to all of the above. . . .”<sup>7</sup> In certain sectors of the U.S. population, however, immigration has always been and will continue to be a matter of grave concern regardless of current hot-button topics in the media and on the lips of politicians.

No American industry depends on the labor-intensive, unskilled work of foreigners as much as agriculture.<sup>8</sup> In fact, 52 percent of U.S. farm laborers are illegal.<sup>9</sup> It is most likely that foreign hands pick the oranges, cut the broccoli, and

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2. President George W. Bush, President Bush Proposes New Temporary Worker Program, Remarks by the President on Immigration Policy (Jan. 7, 2005) (transcript available at <http://www.whitehouse.gov/news/releases/2004/01/print/20040107-3.html>).

3. Press Release, Office of the Press Sec., Fact Sheet: Fair and Secure Immigration Reform (Jan. 7, 2005), <http://www.whitehouse.gov/news/releases/2004/01/print/20040107-1.html>.

4. See e.g., Karen Tumulty, *Should They Stay or Should They Go?*, TIME, Apr. 10, 2006, at 30.

5. Press Release, United Press Int’l, *Bush Pledges to Push Immigration Reform* (Mar. 23, 2005) (it is estimated that nearly 11 million illegal immigrants are currently living in America, more than half of which are from Mexico).

6. Francis Harris, *Bush Under Pressure on Influx from Mexico*, DAILY TELEGRAPH (LONDON), Aug. 17, 2005, at 13.

7. Leslie Berestein, *Legislation and Media Raise the Temperature on Issue of Immigration*, COPLEYS NEWS SERVICE, May 12, 2005.

8. See STEVEN C. BLANK, *THE END OF AGRICULTURE IN THE AMERICAN PORTFOLIO 7* (Quorum Books) (1998).

9. Rain Levy Minns, Note, *Registry Systems for Foreign and Domestic Farmworkers in the United States: Theory vs. Reality*, 15 GEO. IMMIGR. L.J. 663, 665 (2001).

harvest the melon found in your local grocer's produce section.<sup>10</sup> But this use of legal and illegal foreign laborers causes a great deal of conflict due to the competing interests involved. While farm workers are concerned with the adequacy of their income, housing, and working conditions, farm owners worry about getting workers to the fields in time for harvest, the burden of providing them housing, and the belief that domestic farm workers are not as hard working as foreigners.<sup>11</sup>

Further, there is the ever growing concern of global competition: the United States risks falling behind foreign countries in production of agricultural goods if it does not reduce its dependency on foreign workers and mechanize its harvesting processes.<sup>12</sup> Factor in concerns such as human rights, national security, education and social services, and the U.S. has a serious problem on its hands.

This is a mess that calls for a long-term solution. A close examination of the agricultural sector's history of guest worker programs reveals that the root of the U.S.'s current predicament lies in a century of bad policy regarding foreign workers in agriculture. Thus far, no attempt at remedying the situation has come close to success, yet no attempt has truly approached the problem in a long-term manner. It is clear that just as it took the U.S. a century to get into this predicament, it will likely require another century to rectify the situation. Through mechanizing agricultural production, restoring the domestic farm worker base, dealing with the needs of farmers and curbing illegal immigration, the U.S. may successfully extricate itself from the three-part mess that has become agriculture, illegal labor, and harvest mechanization.

Part I of this note explains the history of guest worker programs in the U.S. Various problems with guest worker programs have emerged from this examination, which are discussed in Part II. Part III explains the complications and overwhelming benefits of harvest mechanization of the agricultural sector. Finally, Part IV of this note proposes how mechanization, along with restoring the domestic farm worker base, controlling the supply of illegal immigrant workers, and assisting farmers to verify the status of their workers, are vital components of any long-term solution to the U.S.'s current immigration predicament.

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10. See Yoav Sarig et al., CTR. FOR IMMIGR. STUDIES, *Alternatives to Immigrant Labor? The Status of Fruit and Vegetable Harvest Mechanization in the United States*, Dec. 2000, available at <http://www.cis.org/articles/2000/back1200.html#authors>.

11. Minns, *supra* note 9, at 665.

12. Philip L. Martin & Alan L. Olmstead, *The Agricultural Mechanization Controversy*, 227 SCIENCE 601 (Feb. 8, 1985); Mark Krikorian, CTR. FOR IMMIGR. STUDIES, *Guestworker Programs: A Threat to American Agriculture*, BACKGROUNDERS, June 2001, at 5, available at <http://www.cis.org/articles/2001/back801.pdf> [hereinafter *Threat*].

## II. THE U.S.'S PROBLEMATIC HISTORY WITH GUEST WORKER PROGRAMS

A. *The Early Years of Immigration, the Bracero Program (1942-1964), and the H-2 Program (1952-1986)*

A study of American agriculture's history reveals an established reliance upon non-citizens to complete its backbreaking work at artificially low (if any) wages.<sup>13</sup> From Africans slaving on plantations to Southeast Asians building railroads, foreigners have filled the most unpleasant and dangerous U.S. jobs since the country's establishment.<sup>14</sup> Beginning in the twentieth century, Mexican workers comprised an ever increasing percentage of foreign agricultural workers, and U.S. involvement in global warfare seemed to initiate the major guest worker programs of the early twentieth century.<sup>15</sup>

Approximately 73,000 temporary Mexican and Latin American workers were permitted to enter the United States between 1917 and 1921 pursuant to the Immigration and Nationality Act of 1917, which authorized the Commissioner General of Immigration to admit agricultural workers for employment during World War I.<sup>16</sup> Legal and illegal Mexican immigrants continued to enter the country throughout the 1920s at a rate of approximately 162,000 per year.<sup>17</sup> Because most of them were illegal, and thereby legally unemployable, they remained in agricultural work, where their presence was overlooked by the Immigration and Naturalization Service ("INS") pursuant to its informal policy of moderation in regard to illegal farm labor.<sup>18</sup>

The Great Depression of the 1930s hit legal and illegal Mexican farm workers as hard as anyone else across the United States; as a result, many workers made their way back to Mexico.<sup>19</sup> Their repatriation, along with a number of labor strikes in 1933 and 1934, prompted farm owners to complain of labor shortages, though statistics show this was factually untrue, as there were 263 laborers available for every 100 farm jobs in the United States in 1933.<sup>20</sup>

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13. See Alice J. Baker, *Agricultural Guestworker Programs in the United States*, 10 TEX. HISP. J.L. & POL'Y 79, 82 (2004) (For a detailed and comprehensive history of the U.S.'s use of illegal labor and guest worker programs).

14. See *id.*

15. See Philip Martin, *Does the U.S. Need a New Bracero Program?*, 9 U.C. DAVIS J. INT'L L. & POL'Y 127, 128 (2002).

16. Maria Elena Bickerton, Note, *Prospects for a Bilateral Immigration Agreement with Mexico: Lessons From the Bracero Program*, 79 TEX. L. REV. 895, 898 (2001).

17. MAE M. NGAI, *IMPOSSIBLE SUBJECTS: ILLEGAL ALIENS AND THE MAKING OF MODERN AMERICA* 131 (Princeton U. Press) (2004).

18. *Id.* at 152.

19. See *id.* at 135.

20. Baker, *supra* note 13, at 83.

Mexican farm workers began flooding U.S. fields again during World War II, when an adequate labor supply in the agricultural sector was considered vital to national defense.<sup>21</sup> As a result, in 1942 Congress created the Emergency Farm Labor Program, more commonly known as the Bracero Program.<sup>22</sup> Because it was a bilateral accord between the U.S. and Mexico, Mexican workers (known as “braceros”)<sup>23</sup> were provided certain protections under the Bracero Program they had not previously enjoyed, such as work for at least 75 percent of the contract period, transportation, food, medical services, and lodging.<sup>24</sup> The Bracero Program was supposed to protect domestic workers from competing with guest workers by limiting their use to regions in which the Secretary of Labor certified the following: (1) that there was a shortage of domestic workers; (2) that the use of foreign workers would not adversely impact similarly situated domestic workers; and (3) that the employer had attempted and failed to recruit domestic workers.<sup>25</sup> However, growers made no real effort to recruit domestic labor, the program attracted illegal immigration, and domestic workers were displaced.<sup>26</sup> In 1964 the program ended, after employing a total of 4.6 million workers between 1942 and its expiration twenty-two years later.<sup>27</sup>

In 1952, ten years after the Bracero Program began, section 1101(a)(15)(H)(ii) of the Immigration and Naturalization Act provided for admission of temporary agricultural workers upon certification by the Secretary of Labor that unemployed domestic workers could not be found.<sup>28</sup> Since most Mexican workers were admitted into the U.S. under the Bracero Program during the years when the two programs overlapped, from 1952 to 1964, the H-2 Program primarily brought Caribbean workers to harvest sugar cane, tobacco, citrus, and other crops, as well as Canadians for work in New England’s apple

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21. *Id.* at 84; see ERNESTO GALARZA, *MERCHANTS OF LABOR: THE MEXICAN BRACERO STORY* 41-45 (McNally & Loftin Pub.) (1964) (for an explanation of World War II’s impact on the supply of farm laborers).

22. Baker, *supra* note 13, at 84; see GALARZA, *supra* note 21 at 46-57 (discussing the negotiations that took place between the United States and Mexico).

23. Bracero is a Spanish word that “literally means ‘one who works with his arms.’” Minns, *supra* note 9, at n.17 (citing THOMAS A. ALEINIKOFF ET AL., *IMMIGRATION AND CITIZENSHIP: PROCESS AND POLICY* 392 (4th ed. 1998)).

24. GALARZA, *supra* note 21 at 47-48; NGAI, *supra* note 17, at 139-140.

25. Bickerton, *supra* note 16, at 908.

26. Baker, *supra* note 13, at 85.

27. Kostas A. Poulakidas, *Welfare Reform and Immigration: Attempting to Find a Domestic Answer to a Global Question*, 6 *IND. J. GLOBAL LEGAL STUD.* 283, 289 (1998).

28. 8 U.S.C. § 1101(a)(15)(H)(ii) (2006).

orchards and for picking potatoes.<sup>29</sup> Mexicans were admitted as H-2 workers in the late 1970s and throughout the 1980s, though they still remained a minority of those admitted under the H-2 Program.<sup>30</sup>

### B. *The Immigration Reform and Control Act (1986)*

The Immigration Reform and Control Act (“IRCA”) of 1986 can teach us the most about the failure of U.S. guest worker programs. The IRCA substantially revised the H-2 Program by splitting it into two subsections of workers: H-2A status, for foreign agriculture workers, and H-2B status, for foreign non-agriculture workers.<sup>31</sup> Designed to reduce the number of illegal immigrants working in the United States, the IRCA prohibits employment of undocumented workers and, for the first time in U.S. history, institutes penalties for those who knowingly employ them.<sup>32</sup>

The need for the H-2A Program is premised on the prospect that domestic workers are unavailable or unwilling to fill farmers’ anticipated future needs in their fields.<sup>33</sup> When this occurs, the agricultural employer files an application with the Department of Labor within at least forty-five days of the anticipated need for laborers.<sup>34</sup> Because the H-2A Program requires that there be a domestic labor shortage before importing foreign workers, the Secretary of Labor must certify, before approving an application, that “there are not sufficient workers who are able, willing, and qualified, and who will be available at the time and place needed, to perform the labor or services involved. . . .”<sup>35</sup> Workers are considered “available” when they have “made a firm commitment to work for the employer” or have been “rejected by the employer for other than lawful job-

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29. H. Michael Semler, *The H-2 Program: Aliens in the Orchard: The Admission of Foreign Contract Laborers for Temporary Work in U.S. Agriculture*, 1 YALE L. & POL’Y REV. 187, 194 (1983).

30. The Legal Services Corporation, *The Erlenborn Commission Report*, 15 GEO. IMMIGR. L.J. 99, 105 (2000).

31. 8 U.S.C. § 1101(a)(15)(H)(ii). The IRCA defines an H-2A worker as “[an] alien . . . having a residence in a foreign country which he has no intention of abandoning who is coming temporarily to the United States to perform agricultural labor or services . . . of a temporary or seasonal nature . . .” 8 U.S.C. § 1101(a)(15)(H)(ii)(a) (2006).

32. HELENE HAYES, U.S. IMMIGRATION POLICY AND THE UNDOCUMENTED 4 (Praeger Pub.) (2001); see also Steven Alan Elberg, *Agriculture and the Immigration Reform and Control Act of 1986: Reform or Relapse?*, 3 SAN JOAQUIN AGRIC. L. REV. 197, 197-98 (1993); Baker, *supra* note 13, at 86.

33. Baker, *supra* note 13, at 87.

34. *Id.*

35. 8 U.S.C. § 1188(a)(1)(A) (2006).

related reasons. . . .<sup>36</sup> When the Department of Labor approves an application for H-2A workers, the requested number of workers are granted limited temporary visas permitting them to work for only that employer.<sup>37</sup> When their work has ended, H-2A workers are expected to return to their home countries.<sup>38</sup>

The IRCA also contained two major amnesty provisions whereby illegal aliens obtained legal residency in the United States.<sup>39</sup> The first of these two programs authorized the legalization of any undocumented alien who had been continuously and illegally present in the United States since January 1982.<sup>40</sup> The second amnesty provision, the Special Agricultural Workers (SAW) program, was Congress' attempt to stabilize the agricultural labor supply, thereby recognizing the United States' historical dependency on foreign labor for agricultural production by offering a "generous, one-time-only amnesty program" for undocumented agriculture workers.<sup>41</sup> The SAW program gave legal residency status to alien agriculture workers who resided in the United States and had performed at least 90 days of seasonal agricultural work between May 1, 1985 and May 1, 1986.<sup>42</sup> To qualify for the SAW program, applicants had to file for temporary residence during the eighteen month period between June 1987 and November 1988.<sup>43</sup> About 1.3 million undocumented farm workers applied.<sup>44</sup> Nearly 1.1 million of these previously undocumented aliens became legal United States residents under SAW's amnesty.<sup>45</sup>

Insofar as the SAW program was intended to end illegal immigration and improve working conditions for farm workers, it failed tremendously.<sup>46</sup> While many factors contributed to its failure, it is worth noting that most of SAW's newly legalized farm workers left agriculture for "more stable, higher paying jobs" with better working conditions, such as jobs in Florida tourism.<sup>47</sup> Rather than compete with the wages and conditions in other industries, the agriculture

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36. 20 C.F.R. § 655.106(b)(1) (2007).

37. Baker, *supra* note 13, at 87.

38. *Id.*

39. Elberg, *supra* note 32, at 198.

40. SUSAN GONZALEZ BAKER, *THE CAUTIOUS WELCOME: THE LEGALIZATION PROGRAMS OF THE IMMIGRATION REFORM AND CONTROL ACT 82* (RAND Corp. & Urban Institute Press) (1990) [hereinafter *CAUTIOUS WELCOME*].

41. Elberg, *supra* note 32, at 198-99.

42. *CAUTIOUS WELCOME*, *supra* note 40, at 91.

43. *Id.* at 90.

44. Baker, *supra* note 13, at 87.

45. Minns, *supra* note 9, at 668.

46. HAYES, *supra* note 32, at 4.

47. Andrew Meadows, *Looking the Other Way*, TAMPA TRIBUNE, Oct. 23, 2000, at 8.

industry turned to the undocumented workers spilling over the Mexican border to replace the SAWs in the fields.<sup>48</sup>

Though it remains in effect, in 1992 the Commission on Agricultural Workers declared the IRCA a failure for not meeting its goals.<sup>49</sup> The Commission reported that “[i]llegal immigration had continued to rise, domestic farmworkers still faced high unemployment, and working conditions for farmworkers had continued to deteriorate.”<sup>50</sup>

### III. PROBLEMS WITH GUEST WORKER PROGRAMS

While there are many reasons for the failure of guest worker programs, immigration and agriculture expert Philip L. Martin has narrowed the reasons for failure down to three main categories.<sup>51</sup> According to Martin, it is fair to say that guest worker programs in the U.S. are problematic for three main reasons: (1) guest worker programs encourage both legal and illegal immigration and cause permanent settlement; (2) guest worker programs cause economic distortion, and (3) guest worker programs discourage investment in research and development of agricultural mechanization.<sup>52</sup>

#### A. *Guest Worker Programs Encourage Legal and Illegal Immigration and Cause Permanent Settlement*

Guest worker programs encourage legal and illegal immigration and cause permanent settlement in the U.S.<sup>53</sup> This happens largely due to the concept of “dependence.”<sup>54</sup> Dependence results from families abroad relying on the money they receive from loved ones working both legally and illegally in U.S. agri-

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48. *Id.*

49. Minns, *supra* note 9, at 668.

50. *Id.*

51. Philip Martin, CTR. FOR IMMIGR. STUDIES, *Guestworker Programs for the 21<sup>st</sup> Century*, BACKGROUND, Apr. 2000, at 2-3, available at <http://www.cis.org/articles/2000/back400.pdf> [hereinafter 21<sup>st</sup> Century].

52. *Id.* at 2.

53. *Talk of the Nation: Problems Grow at US-Mexico Border* (National Public Radio (NPR) broadcast Aug. 18, 2005) (According to a recent study from the Pew Hispanic Center, more than 40 percent of Mexican nationals would move to the United States if given the opportunity to do so legally).

54. PHILIP MARTIN ET AL., *MANAGING LABOR MIGRATION IN THE TWENTY-FIRST CENTURY* 85 (Yale U. Press) (2006) [hereinafter *MANAGING LABOR*]; Diana Washington Valdez, *Guest Workers: Migrants Favor Work Visas*, EL PASO TIMES, Mar. 3, 2005, at 1A (For Mexican farm workers, a little goes a long way. “When they can find work, most farm workers in the [Southwest] make about \$7,000 a year”).



culture. Communities and home country governments of migrants likewise depend on the capital generated by their illegal work in the U.S.<sup>55</sup> In fact, during the Bracero Program, dependency was so great that many Mexican migrant families moved to cities on the U.S.-Mexico border, where there was little job opportunity, so as to reduce the cost of transportation for the U.S. agricultural employers.<sup>56</sup> This dependency encourages foreigners to seek work in U.S. agriculture regardless of its legality.

In fact, Mexican dependence on U.S. jobs may be so strong that immigration from Mexico will only continue to increase. A 2001 report released by Mexico's National Population Council posited that Mexico-to-U.S. migration "is a permanent, structural phenomenon . . . built on real factors, ranging from geography, economic inequality and integration, and the intense relationship between the two countries that make it inevitable."<sup>57</sup> The National Population Council also reported that in the year 2000, 1.25 million Mexican households received money averaging \$3,000 to \$4,000 a year, remitted from Mexicans working in the U.S.<sup>58</sup> Given this dependence, for the U.S. to pursue a policy decision cutting off the supply of foreign agricultural workers would simply encourage more illegal immigration.<sup>59</sup> Foreigners whose families are dependant on money earned in U.S. agriculture will continue to enter and work in the U.S. illegally to support their families.

#### B. *Guest Worker Programs Cause Economic Distortion*

Guest worker programs also cause economic distortion.<sup>60</sup> Distortion in the agricultural sector results when there is an overabundance of willing and available workers, because it means farmers need not factor in typical economic considerations in deciding when and where to plant their fields.<sup>61</sup> Labor markets are flexible and will adjust to the presence or absence of workers.<sup>62</sup> Farmers, therefore, need not consider the availability of workers when planting a highly

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55. MANAGING LABOR, *supra* note 54, at 85.

56. *Id.* at 94; Martin, *supra* note 15, at 130.

57. Martin, *supra* note 15, at 138 (quoting *Mexico: Migrant Profile, Trucking*, RURAL MIGRATION NEWS, Vol. 8, No. 8, Aug. 2001, available at [http://www.migrationint.com.au/news/canberra/aug\\_2001-05mn.asp](http://www.migrationint.com.au/news/canberra/aug_2001-05mn.asp)).

58. *Id.* (projecting that the Mexican-born U.S. population in the year 2030 will increase from its current 8.3 million to 18.3 million).

59. Philip Martin, CTR. FOR IMMIGR. STUDIES, *There is Nothing More Permanent than Temporary Foreign Workers*, BACKGROUNDERS, Apr. 2001, at 1, available at <http://www.cis.org/articles/2001/back501.pdf> [hereinafter *Nothing More Permanent*].

60. MANAGING LABOR, *supra* note 54, at 85.

61. *Nothing More Permanent*, *supra* note 59, at 1.

62. MANAGING LABOR, *supra* note 54, at 85.

labor intensive crop in a remote area of the country, such as apple orchards in the New England countryside, because the distorted market of agricultural workers will ensure their presence when the farmer is ready for labor, regardless of how remote the location or intense the work.<sup>63</sup>

This distortion means the agricultural sector is not subject to supply and demand in the same way other sectors of the economy are subject to such basic economic principles.<sup>64</sup> Normally, a labor shortage such as the one farm owners insist would result in the absence of guest workers, “reflect[s] a demand for labor that exceeds the supply of labor. In a market economy, demand-supply imbalances are brought into balance by changing prices and wages, i.e., labor shortages are eliminated by raising wages, which increases the supply of labor and reduces the demand for labor.”<sup>65</sup>

With an excess of legal and illegal guest workers, agricultural employers are not subject to these basic principles. They need not raise wages to attract an adequate supply of labor,<sup>66</sup> because guest workers are always willing to work for very little compensation.<sup>67</sup> It is for this same reason that domestic farm workers are unable to organize for the purpose of demanding higher wages – there will always be guest workers willing to cross their strike line.<sup>68</sup> Also, the availability of social welfare programs further discourages able-bodied domestic workers from entering the workforce by providing them with much needed financial assistance.<sup>69</sup> All these forces work against the domestic farm laborer to make the foreign guest worker increasingly more attractive to employers.<sup>70</sup> In fact, this is so much the case that most agricultural employers prefer to employ foreigners in their fields.<sup>71</sup>

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63. *Nothing More Permanent*, *supra* note 59, at 1; *MANAGING LABOR*, *supra* note 54, at 94.

64. *Nothing More Permanent*, *supra* note 59, at 4.

65. *Id.* at 4.

66. *But see* BLANK, *supra* note 8, at 20-21 (stating that American farmers cannot afford to pay farm workers higher wages because it makes their costs too high to profitably compete in world markets).

67. *See* Philip L. Martin, CTR. FOR IMMIGR. STUDIES, *Promise Unfulfilled: Why Didn't Collective Bargaining Transform California's Farm Labor Market?*, BACKGROUND, Jan. 2004, at 7, available at <http://www.cis.org/articles/2004/back104.pdf> [hereinafter *Promise Unfulfilled*].

68. *See id.*

69. Bradley J. Condon & J. Brad McBride, *Do You Know the Way to San Jose? Resolving the Problem of Illegal Mexican Migration to the United States*, 17 *GEO. IMMIGR. L.J.* 251, 262-63 (2003).

70. *See e.g., id.* at 263.

71. *See* Minns, *supra* note 9, at 665.

C. *Guest Worker Programs Discourage Investment in Research and Development of Agricultural Mechanization*

To a large extent the United States government has historically discouraged research and development by facilitating guest worker programs, subsidizing farmers, and failing to enforce sanctions against agricultural employers who knowingly employ illegal workers.<sup>72</sup> Combined, these three factors discourage farm owners from investing in the mechanization of their harvesting operations.

Government subsidization further distorts the already distorted agricultural sector by creating higher demand for the cheap labor supplied by guest worker programs.<sup>73</sup> Subsidization also “support[s] large-scale agricultural operations that create demand for immigrant labor.”<sup>74</sup> Because this demand for foreign workers can easily be met by the distorted labor market, farm owners have no incentive to seek alternative means of production: “By artificially inflating the supply of labor, government interference in the agricultural labor market keeps the price of labor low and reduces incentives for harvest mechanization and technological advancement in fruit and vegetable production.”<sup>75</sup> The abundance of cheap laborers supplied by the actions of the government discourages farmers from investing in the agricultural mechanization and technological advancement of their production.<sup>76</sup>

Furthermore, there is very little to deter farmers from employing illegal foreign workers in their fields.<sup>77</sup> History has shown that every effort to enforce immigration labor laws has been met with political opposition strong enough to more or less render enforcement meaningless.<sup>78</sup> For example, in 1998 the INS conducted raids during Georgia’s Vidalia onion harvest.<sup>79</sup> While it managed to

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72. Condon & McBride, *supra* note 69, at 262; M. Isabel Medina, *Employer Sanctions in the United States, Canada and Mexico: Exploring the Criminalization of Immigration Law*, 3 SW. J. L. & TRADE AM. 333, 338 (1996); *see generally* Baker, *supra* note 13, at 79.

73. Condon & McBride, *supra* note 69, at 262.

74. *Id.*

75. *Threat*, *supra* note 12, at 2.

76. Mark Krikorian, *More Guest Workers? Not What We Should Pick*, WASHINGTON POST, Feb. 25, 2001, at B03, available at <http://www.cis.org/articles/2001/msk02-25-01.html> [hereinafter *Not What We Should Pick*].

77. *See* Jonathan Peterson, *INS Penalty System Falls Down on Job*, LOS ANGELES TIMES, Aug. 6, 2001, at A1 (pointing out that employer sanctions introduced over 20 years ago have failed to correct the problem for which they were designed); *see also Threat*, *supra* note 12, at 2-3.

78. *See* Peterson, *supra* note 77; *see also Threat*, *supra* note 12, at 2-3.

79. Mark Krikorian, *Giving Enforcement a Chance – Before we Give up on Immigration Enforcement—Why Don’t we Try it?*, NAT’L REVIEW, Jan. 30, 2006 [hereinafter *Giving Enforcement a Chance*].

apprehend a “modest” number of illegal workers, there were thousands more who fled to avoid arrest.<sup>80</sup> Almost immediately agricultural employers and local politicians were complaining the raid halted the harvest and that their crops were rotting in the fields.<sup>81</sup> Within the week Georgia’s two senators and three of its representatives complained to Attorney General Janet Reno and to the Secretary of Labor and Secretary of Agriculture in a letter “fiercely criticizing the INS enforcement action for its ‘lack of regard for farmers.’”<sup>82</sup> As a result of this political firestorm, the INS agreed to allow those who had fled to return to the farms in order to complete the harvest.<sup>83</sup> The INS agreed not to arrest or deport the workers in exchange for the growers’ promise “to work with immigration officials in the future to keep illegal workers out of their fields.”<sup>84</sup>

The INS responded to criticism of the Vidalia raids by developing Operation Vanguard, in which it attempted to enforce the law by identifying illegal workers in Nebraska’s meatpacking plants through auditing their personnel records.<sup>85</sup> The INS scheduled interviews to determine the status of 4,000 workers (of around 24,000 total workers) “who appeared to be illegal.”<sup>86</sup> Soon thereafter 3,500 workers ended their employment,<sup>87</sup> 3,000 of which were presumed to be illegal, as they failed to show for their scheduled interviews and then quit their jobs.<sup>88</sup> While law enforcement officials were extremely pleased with Operation Vanguard, employers and politicians again criticized the INS’s actions; a former Nebraska governor whose lobbying goal was to end enforcement of immigration laws criticized the INS for beginning the Operation Vanguard program in a state “with such low employment and an already big problem with a shortage of labor. . . .”<sup>89</sup> Plans to expand Operation Vanguard to other states and other industries were abandoned shortly thereafter, and the INS refocused its efforts on “aliens who are a danger to the community,” human smuggling, and document

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80. *Id.*; *Threat*, *supra* note 12, at 2.

81. *National Public Radio (NPR) Morning Edition: INS Makes Deal with Farmers* (NPR broadcast May 28, 1998); Editorial, *No More Amnesty Deals*, *AUGUSTA CHRONICLE*, May 22, 1998, at A4.

82. *Threat*, *supra* note 12, at 2; see Editorial, *No More Amnesty Deals*, *AUGUSTA CHRONICLE*, May 22, 1998, at A4.

83. *National Public Radio (NPR) Morning Edition: INS Makes Deal with Farmers* (NPR broadcast May 28, 1998).

84. *Id.*

85. David Bacon, *And the Winner is . . . : Guest Workers Live in Fear of la Migra, and Congress isn’t Helping Them a Bit*, *AMERICAN PROSPECT*, Nov. 2005, at A12.

86. *Threat*, *supra* note 12, at 2.

87. Bacon, *supra* note 85.

88. *Threat*, *supra* note 12, at 2.

89. *Id.*

fraud.<sup>90</sup> Since this new shift in priorities, employer sanctions and worker arrests have dropped drastically.<sup>91</sup> In 1998 the INS issued 7,115 employer sanctions and arrested 13,875 illegal workers.<sup>92</sup> In 2000 those numbers had dropped to 178 and 953 respectively.<sup>93</sup>

Efforts to enforce statutory criminal sanctions against agricultural employers who employ illegal workers in their fields have been no more successful than workplace arrests.<sup>94</sup> This is true with employer sanctions for many of the same reasons. In fact, according to former INS Commissioner Doris Meissner, “neither Republicans or [sic] Democrats nor a broad range of interest groups is prepared to support an employer sanctions program that actually would work.”<sup>95</sup>

While criminal penalties in their present form have only been in effect in the United States since 1986, a survey of similar penalties in European countries as well as in the U.S. reveals that criminalizing employment of illegal workers has not been successful at deterring entry of illegal immigrants.<sup>96</sup> This is mostly due to the lack of enforcement of criminal sanctions.<sup>97</sup> Two possible explanations for the lack of enforcement proposed are that (1) such sanctions do not fall within any of the categories traditionally justifying the criminalization of certain activities within our legal system, such as when an activity causes direct harm to another or is inherently offensive or immoral, and that (2) the principles of capitalism render our society uneasy about preventing an individual from pursuing his or her chosen profession regardless of legal status.<sup>98</sup> Accordingly, in most countries where such criminal sanctions exist, attorneys and prosecutors do not take their violation as a serious offense, judges and juries are hesitant to impose penalties for their violation, and legislatures find it difficult to justify spending significant time and resources on the enforcement and effectiveness of criminal sanctions.<sup>99</sup> If the greater public understood the imperativeness of enforcing such sanctions, and if sanctions were rigorously enforced, it would go a long way toward curbing the illegal immigrant population in America.

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90. *Giving Enforcement a Chance*, *supra* note 79; Peterson, *supra* note 77.

91. *See* Peterson, *supra* note 77.

92. *Id.*

93. *Id.*

94. Medina, *supra* note 72, at 338; *See* Peterson, *supra* note 77 (stating that the INS was never given the resources to enforce employer sanctions).

95. Peterson, *supra* note 77.

96. Medina, *supra* note 72, at 338.

97. *Id.*

98. *Id.* at 353, 356.

99. *Id.* at 353.

It is not surprising that Mark Krikorian, the Executive Director of the Center for Immigration Studies,<sup>100</sup> refers to illegal immigration as a tacit guest worker program in itself.<sup>101</sup> According to Krikorian, the United States already has a guest worker program: illegal immigration.<sup>102</sup>

#### IV. MECHANIZING THE AGRICULTURAL SECTOR

Many believe that mechanical harvesting of crops, as opposed to hand harvesting, has the potential to revolutionize the American agricultural sector, thereby freeing up American dependency on illegal agricultural workers.<sup>103</sup> However, the agricultural sector's current labor mess poses a major threat to the research and development necessary to continue mechanizing United States agriculture.<sup>104</sup>

##### A. *What is Agricultural Mechanization?*

Harvest mechanization began with small-scale farmers and mechanics attempting to lighten the intensity of farm labor, increase productivity, and reduce the risks involved in employing seasonal hand laborers.<sup>105</sup> The shift of workers from agriculture to industry during World War II further fueled the efforts to mechanize American agricultural production.<sup>106</sup> Soon those in the public sector – agricultural engineers with federal and state research agencies and universities – began working with growers and manufacturers on research and development of

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100. The Center for Immigration Studies is “the nation’s only think tank devoted exclusively to research and policy analysis of the economic, social, demographic, fiscal, and other impacts of immigration on the United States.” CTR. FOR IMMIGR. STUDIES, *About the Center for Immigration Studies*, <http://www.cis.org/aboutcis.html> (last visited Aug. 27, 2007). Furthermore, Congress calls the Center for Immigration Studies when it considers immigration policies. Representatives from the Center for Immigration Studies have testified before or submitted written statements to Congressional committees and subcommittees nearly fifty times since 1995. See CTR. FOR IMMIGR. STUDIES, *Center Publications: Congressional Testimony*, <http://www.cis.org/articles/index.html> (last visited Aug. 27, 2007).

101. *Threat*, *supra* note 12, at 3.

102. *Id.* at 2.

103. See e.g., Sarig et al., *supra* note 10.

104. *See id.*

105. *Id.* at 4.

106. G.K. Brown, *Fruit and Vegetable Mechanization*, in MIGRANT LABOR IN AGRICULTURE: AN INTERNATIONAL COMPARISON 195 (Philip L. Martin, ed., Giannini Found. Of Agric. Econ., Univ. of Cal. & German Marshall Fund of the U.S. 1985) [hereinafter *Fruit and Vegetable Mechanization*].

mechanical harvesting technology.<sup>107</sup> Mechanization entails a variety of factors including “the development of machinery, crop varieties, chemical herbicides, growth regulators, and laborsaving methods of handling, transporting, and processing crops.”<sup>108</sup> Between 1960 and 1975, growers began mechanizing their harvest process in response to the termination of the Bracero Program in 1964.<sup>109</sup> Despite this period of relatively widespread mechanization, the average labor-hours per acre (Lh/ac) for harvesting decreased by only twenty percent.<sup>110</sup> Predictions were made for continued rapid mechanization throughout the late 1960s, but statistics show progress fell short by the mid-1970s.<sup>111</sup> The average Lh/ac changed very little between 1980 and 1995, as there was no need for growers to mechanize due to the abundant supply of illegal labor.<sup>112</sup> This remains the case still today.

There are three main forms of mechanical harvesting: (1) labor-aids, (2) labor-saving machines, and (3) robotics systems.<sup>113</sup> While each has its relative costs and benefits, there is no doubt much potential exists for utilizing this technology for the improvement of the agricultural sector.<sup>114</sup>

The most basic form of harvest mechanization is labor-aids.<sup>115</sup> Labor-aids are most common in countries such as Italy, Spain, Australia, and Israel, and generally do not increase labor productivity or reduce costs.<sup>116</sup> The major function of labor-aids is to improve working conditions by rendering the labor involved in harvesting less intensive.<sup>117</sup> A good example is the power-driven replacement for the ladder used in citrus fruit picking.<sup>118</sup> In this way, labor-aids increase the supply of able-bodied workers, such as women and older men, whose presence stabilizes the workforce.<sup>119</sup>

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107. Sarig et al., *supra* note 10; see R.L. Perry, *Harvesting Aids and the Outlook for Mechanical Harvesting*, CAL. CITROGRAPH 67, 67-68 (1965) (for a brief discussion of these early research projects).

108. Martin & Olmstead, *supra* note 12.

109. Sarig et al., *supra* note 10.

110. *Id.*

111. M. Zahara & S. S. Johnson, *Status of Harvest Mechanization of Fruits, Nuts, and Vegetables*, 14 HORTSCIENCE 578, 580 (1979) (for percentages of machine harvested fruits and vegetables predicted for 1975 and actual for 1978, see Table 5).

112. Sarig et al., *supra* note 10.

113. *Id.*

114. *See id.*

115. *See id.*

116. *Id.*

117. *Id.*

118. *See Perry, supra* note 107, at 68.

119. Richard Mines, *What Kind of Transition is Necessary to Secure the Future of U.S. Fruit, Vegetable, and Horticultural Agriculture?*, 8 LABOR MGMT. DECISIONS (1999), available at [http://are.berkeley.edu/APMP/pubs/lmd/html/wintspring\\_99/LMD.8.1.transition.html](http://are.berkeley.edu/APMP/pubs/lmd/html/wintspring_99/LMD.8.1.transition.html).

Labor-saving machines, on the other hand, have many additional benefits.<sup>120</sup> They reduce costs, subject to their cheap purchase and operation, and increase productivity up to ten fold.<sup>121</sup> Labor-saving machines replace traditional hand harvesting by harvesting in mass: they shake trees and bushes, dig rows of below-ground vegetables, and cut above-ground vegetables.<sup>122</sup> While labor-saving machines greatly reduce the required workers in the field,<sup>123</sup> more human laborers may be required at packing and processing to inspect the quality of the produce, as these machines tend to result in more damaged product than traditional hand harvesting methods.<sup>124</sup> However, the remaining workforce would possess a higher skill set and their work would be more year-round, as “the mechanization of harvest tasks can smooth out the peaks” of the harvest process.<sup>125</sup>

Robotic systems are the most technologically advanced and therefore most ambitious form of agricultural mechanization.<sup>126</sup> Robotic systems should simulate the decision-making and picking process of human laborers by

locat[ing] the fruits on the tree in three dimensions . . . approach[ing] and reach[ing] for the fruit . . . detach[ing] the fruit according to a predetermined criterion, and transfer[ing] it to a suitable container . . . and propel[ing] in the orchard with ease of maneuverability, from tree to tree and row to row, while negotiating various terrains and topographies.<sup>127</sup>

This technology is complicated, as “it requires the integration of a host of technologies . . . such as vision systems, image processing, robot kinematics, sensors, controls and computerized signal analysis.”<sup>128</sup> It is not surprising that robotic systems are much more expensive than other methods of harvest mechanization.<sup>129</sup> Further, a sizeable percentage of crops cannot be retrieved by this technology due to complications with identifying, locating, and picking.<sup>130</sup> This means that either hand harvesters must go back through crops after the machines have been through, or the remaining twenty-thirty percent of produce must be

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120. Sarig et al., *supra* note 10.

121. *Id.*

122. *Id.*

123. Mines, *supra* note 119.

124. Sarig et al., *supra* note 10.

125. Mines, *supra* note 119.

126. See Y. Sarig, *Robotics of Fruit Harvesting: A State-of-the-Art Review*, 54 J. AGRIC. ENG'G. RES. 265, 266 (1993) [hereinafter Y. Sarig].

127. Y. Sarig, *supra* note 126, at 266 (providing a detailed discussion of such robotic systems, including illustrations).

128. *Id.*

129. Sarig et al., *supra* note 10.

130. Y. Sarig, *supra* note 126, at 278.



abandoned.<sup>131</sup> While this technology is still very new, research conducted mostly in countries abroad has produced promising results.<sup>132</sup> For example, electronic optical sorting and sizing technology has already been developed to choose suitable fruits to fill boxes.<sup>133</sup> This technology has been used for fresh market citrus, apples, pears, and some fresh vegetables.<sup>134</sup>

Despite the many benefits of agricultural mechanization, at least twenty to twenty-five percent of vegetable acreage and forty to forty-five percent of fruit acreage in the United States is still entirely dependent upon hand harvesting methods.<sup>135</sup> Labor intensive hand harvesting of crops in the United States makes up “about 50 percent of total production costs.”<sup>136</sup> Plainly, mechanization could greatly benefit this sector of American agricultural, although it is not without its problems.

### B. *The Practical Problems of Mechanization*

There are problems with the widespread applicability of mechanical harvesting technology.<sup>137</sup> In particular, mechanical harvesting technology that has been successfully utilized in one production zone may not be a viable option for use in another production zone because of differences in factors such as the climate, soil and terrain differences, and tree or plant type.<sup>138</sup> Furthermore, substituting harvesting machines for human judgment is complicated by differences between crops, species, and varieties, where there exists an absence of uniform maturity and differences in criteria for readiness to be harvested.<sup>139</sup> Harvesting machines typically cannot select to harvest only the mature product, as is the practice with hand harvesting.<sup>140</sup>

Perhaps the greatest problem with mechanical harvesting technology is the damage it can inflict upon the product it harvests.<sup>141</sup> Because this technology

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131. Sarig et al., *supra* note 10.

132. See Y. Sarig, *supra* note 126, at 269, 278-79.

133. Mines, *supra* note 119.

134. *Id.* See Donald L. Peterson & Stephen S. Miller, *Advances in Mechanical Harvesting Technology of Fresh Market Quality Apples*, 42 J. AGRIC. ENG'G. RES. 43, 43-50 (1989) (providing a detailed discussion of mechanical harvesting technology utilized in fresh market apple picking, including photographs and illustrations).

135. Sarig et al., *supra* note 10.

136. *Id.*

137. See *id.* (providing tables comparing the crop yields using hand harvesting and mechanical methods).

138. *Id.*

139. *Id.*

140. *Id.*

141. See Y. Sarig, *supra* note 126, at 265; Mines, *supra* note 119.

cannot simulate human care and judgment, harvesting machines can damage the product by causing cuts, bruises, and further injuries.<sup>142</sup> This is a problem for farmers because damaged product cannot go to the fresh market for sale, which is further exacerbated by the increasing demand for high quality fresh product to sell in markets and for shipment overseas to Asia, Europe, and Latin America.<sup>143</sup> Produce shipped overseas for sale needs to arrive in peak condition, which is difficult to achieve with mechanical harvesting machinery.<sup>144</sup> As the standard of living rises in third world countries, so too will their fresh fruit consumption.<sup>145</sup> These quality demands will become an even greater concern as America's agricultural sector increasingly exports fresh fruits and vegetables to meet the demand.

Because one of the goals of increased agricultural mechanization is to decrease American dependency on illegal workers, many are concerned with the effect their elimination may have on market prices and the agricultural sector of the economy.<sup>146</sup> It is true that the removal of illegal workers from the seasonal agricultural workforce would increase prices.<sup>147</sup> Supermarket prices during the summer and fall seasons of fresh fruits and vegetable would increase by six percent in the short term (approximately one to two years) and three percent in the intermediate term (approximately five to seven years).<sup>148</sup> During the winter-spring season, supermarket prices for fresh fruits and vegetables would increase by three percent in the short term and two percent in the intermediate term.<sup>149</sup> The moderate price increase during the winter and spring seasons is due to fruit

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142. This has certainly been the case with the mechanical harvesting of apples. "This damage occurs from 1) excessive apple movement during detachment, causing apple-to-apple, and apple-to-branch contact; 2) apple-to-branch contact when falling; and 3) apple-to-apple contact on the catching surfaces, since most of the apples fall in a short time period (3-6 s)." These same problems have also prevented mechanical harvesting of sweet cherries. Donald L. Peterson, *Harvest Mechanization Progress and Prospects for Fresh Market Quality Deciduous Tree Fruits*, 15 HORTTECHNOLOGY 72-73, 74 (2005), available at <http://www.ars.usda.gov/SP2UserFiles/Place/19310000/Hort2005Peterson.pdf> [hereinafter *Harvest Mechanization Progress*]. While the problems facing machine harvesting of apples and sweet cherries do not apply to peaches, "mass removal of peaches by shaking resulted in either too many overripe or underripe fruit, or both." *Id.* at 72, 74.

143. Mines, *supra* note 119.

144. *Id.*; Sarig et al., *supra* note 10.

145. Donald L. Peterson, *Harvest Mechanization for Deciduous Tree Fruits and Brambles*, 2 HORTTECHNOLOGY 85, 85 (1992) [hereinafter *Fruits and Brambles*].

146. See Wallace Huffman & Alan McCunn, CTR. FOR IMMIGR. STUDIES, *How Much is that Tomato in the Window? Retail Produce Prices Without Illegal Farmworkers*, Feb. 1996, available at <http://www.cis.org/articles/1996/back296.htm>.

147. *Id.*

148. *Id.*

149. *Id.*

and vegetable imports from Mexico.<sup>150</sup> However, these increases would be short lived.<sup>151</sup> In the long-term, supermarket prices of produce would actually decrease.<sup>152</sup>

Supermarket-goers would not be the only group to experience increased costs.<sup>153</sup> Because they will need to obtain “new sources or channels” for recruiting domestic agricultural workers and the possible need to train new workers, agricultural employers would have to pay higher wages to their employees.<sup>154</sup> Since U.S. citizens are a very small minority of seasonal agricultural workers, valuable field and supervisory experience would be eliminated along with the experienced illegal workers.<sup>155</sup> Accordingly, seasonal agricultural workers would have an average wage rate increase of approximately thirty percent in the short term and fifteen percent in the intermediate term.<sup>156</sup>

### C. *The Potentials in Mechanization*

Despite its various criticisms, mechanization remains the option with the most potential to revolutionize the manner in which American agriculture operates. A few examples illustrate its great potential to decrease costs, increase productivity, and eliminate American dependency on foreign labor.<sup>157</sup>

The process of sugar cane harvesting in Florida provides an example of mechanization initiated by growers whose contract troubles with foreign field workers prompted them to look for alternatives to hand harvesting.<sup>158</sup> Traditionally, Florida sugar cane was harvested by workers bearing machetes by hand, bending and turning at the waist in extreme heat, surrounded by mosquitoes and snakes.<sup>159</sup> This work was mostly done by 9,000 to 10,000 West Indian guest

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150. *Id.*

151. *Threat, supra* note 12, at 6.

152. *Id.*

153. *See* Huffman & McCunn, *supra* note 146.

154. *Id.*

155. *Id.*

156. *Id.*

157. *See e.g.*, Biosystems & Agric. Eng’g Dep’t, Univ. of Kentucky, *Burley Harvest Mechanization and Curing Progress and Options: An Overview of Harvesting, Handling and Curing Developments* (2005), available at <http://www.bae.uky.edu/Ext/Tobacco/PDFs/BurlMech.pdf> (for additional information on the successful mechanical harvesting of burley tobacco).

158. Mark Engler, *Farming the Everglades*, MIAMI INDEP. MEDIA CTR., Jan. 6, 2004, <http://miami.indymedia.org/news/2004/01/40.php> (last visited Aug. 27, 2007); *Threat, supra* note 12, at 4-5.

159. Engler, *supra* note 158 (quoting one Jamaican guest worker who had harvested Florida sugar cane by hand describing the working conditions, ““Our lives [are] one day shorter for each day we cut cane.””); *Threat, supra* note 12, at 4.

workers a year, imported under H-2A visas.<sup>160</sup> In the 1990s these workers filed a class action lawsuit against their employers alleging they were owed millions of dollars in back pay.<sup>161</sup> Employers responded by calculating it would be less costly to mechanize the harvesting process than to honor the terms of future employment contracts with guest workers.<sup>162</sup> By 1993, fifty percent of Florida sugar cane was machine harvested, and nearly all of it was harvested by machine in 2001.<sup>163</sup> This has resulted in increased productivity, higher wages, and more pleasant working conditions for the remaining harvesters.<sup>164</sup>

Another example of successful agricultural mechanization comes from California, where the development and implementation of labor-saving machines revolutionized tomato production.<sup>165</sup> A new tomato harvester, developed in the 1950s and made commercially available in the early 1960s, allowed for 24 hour harvesting and eliminated the need for workers to carry forty to fifty pound crates through the field.<sup>166</sup> This technology resulted from the work of a University of California plant scientist (who developed a uniformly ripening tomato) and University of California engineers (who built machines capable of cutting the tomato plant, shaking off the tomatoes, and moving them past electronic and hand sorters).<sup>167</sup> Accordingly, machine harvesting of California tomatoes requires only .4 Lh/ac, a stark contrast to the five Lh/ac that tomato production required in the 1960s.<sup>168</sup> The result is that production of California tomatoes dramatically increased (from 2.3 million tons to more than ten million tons) between the early 1960s and today.<sup>169</sup> This makes California the world's largest producer of processed tomatoes.<sup>170</sup>

Similar mechanization successes have been accomplished with other crops, such as the mechanical harvesting of tart cherries, prunes, and sweet cherries.<sup>171</sup> And while fresh market grapes remain hand harvested, grapes intended

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160. *Threat*, *supra* note 12, at 4.

161. Engler, *supra* note 158 (some of these lawsuits were successful for the guest workers, who were awarded millions of dollars in back pay).

162. *Threat*, *supra* note 12, at 4-5.

163. *Id.* at 5.

164. *Id.* at 5.

165. See Martin & Olmstead, *supra* note 12.

166. Sarig et al., *supra* note 10.

167. Martin & Olmstead, *supra* note 12.

168. Sarig et al., *supra* note 10.

169. *Id.*

170. *Id.*

171. G.K. Brown et al., *Tree Fruit Harvesting Systems: I. Individual Trees*, in PRINCIPLES AND PRACTICES FOR HARVESTING AND HANDLING FRUITS AND NUTS 575, 576-580 (Michael O'Brien et. al., eds., AVI Publing. Co. 1983) [hereinafter *Tree Fruit Harvesting Systems*].

for juice and wine are machine harvested almost 100 percent of the time today.<sup>172</sup> Successes such as these were noticed in recent years by Florida citrus growers, whose profit margins have been decreasing as a result of increased harvest costs and steady or decreasing fruit prices.<sup>173</sup> This prompted the Florida Department of Citrus to resurrect a previously abandoned mechanical harvesting program aimed at developing harvesting systems designed to reduce harvesting costs.<sup>174</sup> Partly motivated by concern over price competition with foreign citrus growers and partly to reduce dependency on hand harvesters, the program appears promising.<sup>175</sup>

There is great potential for future advancement in agricultural mechanization technology.<sup>176</sup> Though public funding for such research declined after the 1970s,<sup>177</sup> advancements continue to be made. Computer capability and sensor technology has rapidly advanced.<sup>178</sup> Machines capable of sorting out damaged produce are becoming more readily available.<sup>179</sup> Plant breeders continue to develop new varieties of produce that make utilization of mechanical harvesting technology more feasible.<sup>180</sup> To enable the mechanical harvesting of deciduous tree fruits (such as apples), breeders work on developing fruit that mature more uniformly, are more firm, and have a “compact growth habit,” which “produces fruit in narrow canopies and on short/stiff limbs.”<sup>181</sup> Called “tree architecture,” this plant breeding strategy “place[s] fruit in a ‘harvestable’ position for efficient removal and collection.”<sup>182</sup> New varieties of produce make maturity more uniform, produce higher yields, and spread out the length of the harvest season.<sup>183</sup> All this allows for increased productivity while decreasing American dependency on foreign field laborers.<sup>184</sup>

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172. Sarig et al., *supra* note 10.

173. S. H. Futch et al., Inst. of Food and Agric. Sci., U. of Florida, *Harvesting: From Manual to Mechanical 1* (May 2005), available at <http://edis.ifas.ufl.edu/pdf/HS/HS21800.pdf>.

174. *Id.*

175. Sarig et al., *supra* note 10 (it is projected that harvesting costs at roadside will be reduced by as much as twenty-five to seventy-five percent over the next ten years and labor productivity will increase three to fifteen fold).

176. *See id.*

177. *Id.*

178. *Id.*

179. *Id.*

180. *Id.*

181. *Harvest Mechanization Progress*, *supra* note 142, at 74.

182. *Id.* at 75.

183. Sarig et al., *supra* note 10.

184. *See id.*; see also *Harvest Mechanization Progress*, *supra* note 142, at 74-75.

*D. The Risk of Failing to Mechanize*

Despite the availability of feasible mechanical harvesting technology, the scope of U.S. crops not yet mechanized is quite extensive.<sup>185</sup> Whereas nearly 100 percent of nut crops are currently mechanized, there remain about twenty vegetable crops and twenty-five fruit crops still not utilizing feasible mechanical harvesting technology.<sup>186</sup> These vegetable crops total over 1.4 million acres, comprising twenty to twenty-five percent of total U.S. vegetable acreage, while the fruit crops total over 2.2 million acres, or about forty to forty-five percent of total U.S. fruit acreage.<sup>187</sup> Failure to mechanize these crops will result in adverse consequences beyond just the loss of productivity.

If United States agriculture continues on its current path, its dependency on illegal foreign labor will likely increase. In the meantime, the American agricultural sector continues to compete with the agricultural production of: (1) Third World countries, with whose low wages a First World country could not dream to compete, and (2) European countries, which are utilizing technology and mechanization to advance their agricultural production.<sup>188</sup> The research and development of robotic systems, the most advanced and promising technology for mechanization, is today much further along and closer to market in the European Union than in the United States.<sup>189</sup>

Raisin grapes provide a good example of mechanization's potential for increased productivity.<sup>190</sup> Developed by Australian farmers in the late 1950s and early 1960s, "dried-on-the-vine" (DOV) production of raisin grapes substantially reduced the labor demand at harvest time, increased yield per acre by up to 200 percent, spread the labor demand over the entire year, and reduced the grapes' vulnerability to damage due to rain, dirt, sand, and mold.<sup>191</sup> Despite the fact that raisin production is one of the most labor intensive, and that DOV technology has proven to revolutionize this process, the vast majority of United States raisin grapes are still harvested by foreign laborers using conventional methods: cutting the grapes from the vine with a knife, laying the grapes on a paper-lined tray for drying, and manually turning, rolling, and collecting the grapes.<sup>192</sup> Why is

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185. See Sarig et al., *supra* note 10.

186. *Id.*

187. *Id.*

188. *Threat*, *supra* note 12, at 5.

189. *Id.*

190. See Bert Mason et al., CTR. FOR IMMIGR. STUDIES, *Alternatives to Immigrant Labor?: Raisin Industry Tests New Harvesting Technology*, June 1997, available at <http://www.cis.org/articles/1997/back297.html>.

191. *Id.*

192. *Id.*

DOV technology not being utilized by raisin grape farmers in the United States? According to Krikorian, “the widespread availability of foreign workers is a disincentive to raisin farmers, whose average age is believed to be over sixty, to make the long-term capital investment needed to retrofit existing raisin farms for DOV production.”<sup>193</sup> The result is that the U.S. is not currently equipped to utilize DOV technology, nor will it be in the near future.<sup>194</sup>

Without the development and implementation of agricultural mechanization, the United States will fall behind other developed countries that are utilizing this technology to increase their agricultural production.<sup>195</sup> Failure to mechanize is “a prescription for increasing the industry’s vulnerability to foreign producers.”<sup>196</sup> This puts the United States in great jeopardy of losing its competitive edge in the international community.<sup>197</sup> Of further concern is the likelihood that the future will bring an increased demand in U.S. and World food needs.<sup>198</sup> Fruits and vegetables are an important source of nutrition necessary in the human diet, and agricultural production will need to produce more product to meet ever growing demands.

The ultimate goal of any farm is to harvest its crop in the most efficient manner possible, which necessarily entails considerations of time, money, and quality of produce. Mechanization technology lies at the heart of agricultural efficiency; it is the future of agriculture.<sup>199</sup> Agricultural mechanization has not been researched, developed, and implemented in the United States at the same rate as in foreign countries because American farmers have had little incentive to put money into mechanization.<sup>200</sup> The abundance of cheap foreign labor and government subsidies, as well as the lack of enforcement of labor laws by the INS, all allow American farmers to continue production just as they did nearly a century ago.<sup>201</sup> The little push there was for research and development of agricultural mechanization in the 1970s was quashed in 1979 when the then Secretary of Agriculture, Bob Bergland, insisted that he would not put federal money into anything that would reduce the need for farm labor.<sup>202</sup> Casually referred to by some as “the Bergland policy,” this attitude toward farm labor slowly ended pub-

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193. *Threat*, *supra* note 12, at 4.

194. *See id.*

195. Martin & Olmstead, *supra* note 12; *Threat*, *supra* note 12, at 5.

196. Martin & Olmstead, *supra* note 12.

197. *Id.*

198. *Fruit and Vegetable Mechanization*, *supra* note 106, at 200.

199. *See* Sarig et al., *supra* note 10.

200. *See supra.*

201. *See* discussion, *supra* Part II.

202. Jim Chen, *The American Ideology*, 48 VAND. L. REV. 809, 841 (1995).

lic funding for research and development of mechanization aimed at increasing productivity and decreasing costs.<sup>203</sup>

#### V. PROPOSING CHANGE: THE NEED FOR A LONG-TERM SOLUTION

A detailed study of the United States' agricultural history reveals that guest worker programs, illegal immigration, and politics have been inextricably entwined.<sup>204</sup> Born of international war and political pressure from growers, importation programs such as the Bracero Program and the H-2 Program were not implemented in response to a genuine concern that there was a national labor shortage for agriculture.<sup>205</sup> Such programs function as bandages, temporarily addressing an ever-growing problem within the agricultural sector.<sup>206</sup> Unfortunately, that problem has now spilled over into timelier concerns such as immigration, human rights, and terrorism. The need for a long-term solution has never been greater.

Any long-term solution to this situation must begin with acceptance of the following: *this is going to take significant time and money*. The conundrum the United States finds itself in will not be resolved in a short timeframe or without significant cost. A successful long-term solution cannot be realized without accepting the time and financial consequences.

Having accepted that proposition, the big issue that needs addressing is how to manage this situation in a long-term manner. Any long-term solution must involve all of the following: agricultural production must be mechanized; the domestic farm worker base must be restored; farmers' special needs addressed, and illegal immigration must be curbed.

##### A. *Mechanizing Agricultural Production and Restoring the Domestic Farm Worker Base*

Mechanizing agricultural production and restoring the domestic farm worker base are vital to the long-term well being of the agricultural industry. As already discussed, however, there are serious impediments to mechanization in the United States. The best way to address those impediments is through funding.<sup>207</sup> So long as there is access to cheap labor, private farm owners will not

203. Sarig et al., *supra* note 10.

204. See Cindy Hahamovitch, CTR. FOR IMMIGR. STUDIES, *The Politics of Labor Scarcity: Expediency and the Birth of the Agricultural "Guestworker" Program*, BACKGROUND, Dec. 1999, at 1, available at <http://www.cis.org/articles/1999/back1299.pdf>.

205. *Id.*

206. *See id.*

207. *See generally* Sarig et al., *supra* note 10.



invest their money in the development and implementation of mechanization. While this invariably requires the elimination of the illegal labor supply, research and development of agricultural mechanization needs to occur in the meantime.

This can be accomplished through large scale funding of research and development by governmental agencies, universities, and private companies.<sup>208</sup> In particular, the Department of Agriculture should fund the research and development of labor-aids, labor-saving machines, and robotic systems to assist in the harvesting process, and university researchers need funding to develop new plant varieties and methods of growing that are more suitable for mechanical harvesting.<sup>209</sup>

In addition to the many benefits of agricultural mechanization already discussed, mechanizing the agricultural production process will help to restore the domestic farm worker base in the United States. Development of labor-aids will make agricultural work less unpleasant and less physically demanding.<sup>210</sup> Labor-saving machines and robotic systems will reduce dependency on foreign labor, increase productivity, and decrease production costs.<sup>211</sup> This will likewise help to restore the domestic farm worker base by requiring fewer laborers, which will result in higher wages for those who remain.<sup>212</sup> It will also spread the work throughout the entire year, rather than for a short harvesting season.<sup>213</sup> This will provide more stable employment, making agricultural work much more attractive to domestic workers.<sup>214</sup>

Admittedly, there are some drawbacks to large-scale agricultural mechanization.<sup>215</sup> Some marginal, undercapitalized farms may go out of business.<sup>216</sup> However, such farms would likely meet their end regardless of harvest mechanization.<sup>217</sup> Also, some crops that cannot be reasonably mechanized will no longer

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208. *See id.*; *Threat*, *supra* note 12, at 5.

209. *See Threat*, *supra* note 12, at 5; *see also* Sarig et al., *supra* note 10 (indicating that there are a significant number of fruit and vegetable crops with great potential for new productive harvesting technology. Fruits include apples, apricots, avocados, fresh sweet cherries, fresh grapes, kiwifruit, nectarines, olives, peaches, plums, pears, citrus, fresh blueberries, and strawberries. Vegetables include asparagus, broccoli, cantaloupe, watermelon, cauliflower, eggplant, fresh cucumbers, fresh tomatoes, sweet pepper, fresh snap beans, lettuce, and squash).

210. *See Threat*, *supra* note 12.

211. *Id.*

212. *See id.* (citing the example of sugar cane harvesting in Florida, in which mechanization has resulted in higher wages and a more "civilized" working environment).

213. *Id.*

214. *Id.*

215. *See e.g., id.* at 7.

216. *Id.* at 6.

217. *See BLANK*, *supra* note 8, at 20-21.

be profitable, and their production in the U.S. will end.<sup>218</sup> The effect of this is minimal however, because though these crops will become imports, they will only result in a one percent increase of imported produce.<sup>219</sup> Finally, while the price of fruits and vegetables would increase slightly in the short and intermediate terms, the long-term result of harvest mechanization would actually be a decrease in supermarket prices of produce.<sup>220</sup>

### B. *Dealing with Farmers' Needs and Illegal Immigration*

It is imperative that the needs of farmers are addressed while simultaneously taking steps to curb illegal immigration. This will involve controlling the supply of illegal immigrant workers, assisting farmers in verifying the legal status of their workers, and improving working conditions while protecting workers' rights.

#### 1. *Controlling the Supply of Illegal Immigrant Workers*

Many believe the way to control the supply of illegal immigrant workers in the United States is to vigilantly patrol the border.<sup>221</sup> The feasibility and success of that proposition is for another note.<sup>222</sup> The fact is that the most sensible and perhaps obvious way to control the supply of illegal immigrant workers is to cut off their access to American jobs. Because of the dependency already discussed, illegal workers will do just about anything to enter the United States. If they find they are unable to get work once they are here, eventually their dependency will shift elsewhere.

The most effective way to ensure illegal workers do not find employment in American agriculture is to enforce the labor laws. This in itself can prove to be a major difficulty, as previously discussed.<sup>223</sup> The fact remains that the risk farmers take by hiring illegal farm workers must be great enough to act as a sufficient deterrent. This will only be accomplished through strict enforcement of

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218. See Huffman & McCunn, *supra* note 146.

219. *Id.*

220. *Threat*, *supra* note 12, at 6.

221. See generally *Giving Enforcement a Chance*, *supra* note 79.

222. See *id.* (stating “[a]ny Border Patrol agent will tell you that he and his colleagues can’t be expected to shoulder the entire weight of immigration enforcement”).

223. See Peterson, *supra* note 77 (quoting Doris Meissner who states: “neither Republicans or [sic] Democrats nor a broad range of interest groups is prepared to support an employer sanctions program that actually would work”).

the law.<sup>224</sup> Any new or modified method of control, no matter how thorough, will not work if farmers can continue to hire illegal workers.<sup>225</sup>

The best way to ensure farmers do not hire illegal workers is to enforce employer sanctions. Such sanctions have not deterred farmers from hiring illegal workers in the past only because enforcement was lax and sanctions were not harsh enough to sufficiently deter the hiring of illegal workers. The only way employer sanctions will curb these illegal employment practices is if the risk of hiring illegal workers is too great when weighed against the ramifications of getting caught doing so.<sup>226</sup> This will require sanctions to be sufficiently tough and enforced: there needs to be serious economic consequences for farmers caught employing illegal workers.<sup>227</sup> In fact, it has been suggested that employers be sanctioned for not being able to prove their guest workers returned back to Mexico after the harvest.<sup>228</sup>

Strict enforcement of legal employment practices and employer sanctions has additional benefits crucial to long-term success. Economic incentives such as these can not only keep farmers from supplying jobs to illegal workers, but their enforcement can also be used to further research the development of mechanical harvesting technology.<sup>229</sup> The fees collected from sanctioned employers can be put toward research and development of mechanization.<sup>230</sup> In this way, employers who insist on hiring illegal workers will help to pay for the development of mechanization.

The bottom line is that employers must have an incentive to hire domestic workers first or to develop mechanization that will reduce their dependence on cheap labor.<sup>231</sup> The enforcement of legal employment practices and sanctions

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224. See generally LISA MAGANA, *STRADDLING THE BORDER: IMMIGRATION POLICY AND THE INS* (U. of Tex. Press) (2003) (for an investigation and analysis regarding the ineffectiveness of the INS).

225. Minns, *supra* note 9, at 701.

226. Rain Levy Minns proposes the following formula for calculating the appropriate severity of employer sanctions: "F > (L-I)/R." 'F' is "the optimal fine... 'L' is the cost of hiring legal workers... 'I' is the cost of hiring an illegal worker... 'R' is the risk that a farmer faces of being caught by the INS or Department of Labor." For further explanation, see Minns, *supra* note 9, at 690-91.

227. Michael J. Mayerle, *Proposed Guest Worker Statutes: An Unsatisfactory Answer to a Difficult, If Not Impossible, Question*, 6 J. SMALL & EMERGING BUS. L. 559, 580 (2002).

228. *Id.*

229. See *Nothing More Permanent*, *supra* note 59, at 1, 5.

230. See *id.* (suggesting employers should pay fees "for the privilege of hiring guest workers . . . with the amount perhaps equivalent to what employers would have to pay in social security and unemployment insurance taxes for guest workers who are not supposed to remain and benefit from these programs.").

231. Mayerle, *supra* note 227, at 580.

will help to accomplish this bottom line by encouraging employers to search for domestic workers.<sup>232</sup> Contrary to what some believe, statistics show there are more than enough American citizens to fill these jobs; there are currently 34 million low-wage workers in the civilian labor force.<sup>233</sup> To make these workers more willing to work in agriculture, employers will have to generate programs for mechanization as well as retrain domestic workers to fill field supervisory positions in which they have little to no experience.<sup>234</sup>

## 2. *Helping Farmers Verify the Status of Their Workers*

If legal employment practices and employer sanctions are going to be more strictly enforced and economically harsh on violators, farmers must be better assisted in determining the legal status of their workers. Farmers find themselves in a very difficult position: the law requires them to hire only legal workers but also forbids them from discriminating against foreign-born job applicants.<sup>235</sup> This situation, along with the availability of falsified identification documents, makes it difficult for employers to determine the legal status of their workers.<sup>236</sup>

Therefore, legal enforcement of employment practices and employer sanctions requires that the system for verification of a job applicant's legal status be improved.<sup>237</sup> As it stands now, an employer need only determine that an applicant's identification appears "reasonably genuine" to comply with sanction laws; this is a relatively easy test to satisfy given the availability of false documents to illegal immigrants.<sup>238</sup> Improving the system by which employers can verify the authenticity of an applicant's identification documents is crucial given the "flouring [sic] black market in identification papers," including birth certificates, social security numbers, and driver's licenses.<sup>239</sup>

Arguments for the implementation of a registry system for legal farm workers, both domestic and foreign, have been proposed.<sup>240</sup> There are problems

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232. *See id.*

233. Vernon M. Briggs, Jr., CTR. FOR IMMIGR. STUDIES, *Guestworker Programs: Lessons From the Past and Warnings for the Future*, BACKGROUNDERS, Mar. 2004, at 7, available at <http://www.cis.org/articles/2004/back304.pdf>.

234. *Nothing More Permanent*, *supra* note 59, at 1, 5.

235. Peterson, *supra* note 77.

236. *See id.*

237. *See* Mayerle, *supra* note 227, at 580-81; Peterson, *supra* note 77.

238. Peterson, *supra* note 77.

239. *Id.*

240. Minns, *supra* note 9, at 691.

with such a system due to the inherent migratory nature of farm work.<sup>241</sup> Farm workers need to be highly mobile due to the sometimes remote areas in which crops are harvested, the short notice such workers have before their labor is needed, and the short length of the harvest time.<sup>242</sup> Accordingly, a registry system could be a real burden on farmers attempting to verify the status of such workers because of the short timeframe farmers have in which to utilize the assistance of a registry system.<sup>243</sup> For this reason, it has been argued that a registry system cannot be effectively implemented until the United States' farm worker labor market stabilizes.<sup>244</sup>

Despite its complications and burdens, it appears some sort of massive, highly regulated program by which to verify farm workers' legal status remains the best option.<sup>245</sup> The fake identification market will continue to innovate, such that only a centralized system established and operated by the federal government will address farmers' need to verify the legal status of their job applicants.<sup>246</sup> Admittedly, such a system will require serious manpower, the utilization of technology, and perhaps the tracking of farm workers.<sup>247</sup> While this will be expensive, time consuming, and complicated, farmers need a more trustworthy system by which to verify the legal status of their workers. Improving the system for verification of a job applicant's legal status will ensure those employers being sanctioned either knew, or should have reasonably known, they were engaging in illegal employment practices.

### *3. Improving Conditions on Farms and Protecting Workers' Rights*

Finally, any long-term solution to this problem must protect the safety and rights of farm workers.<sup>248</sup> In particular, guest workers are vulnerable to the abuse of their rights because "their ability to remain in the country is directly linked to the willingness of businesses to employ them."<sup>249</sup> This puts foreign workers in a very difficult position, because they risk losing their jobs and being sent back to their home countries if they complain about working conditions, hours, or the adequacy of food and housing.<sup>250</sup> Illegal workers are likewise vul-

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241. *See id.* at 691-96.

242. *See id.*

243. *See id.* at 691-93.

244. *Id.* at 701.

245. *See* Tory A. Cronin, *The Wrong Solution: An Examination of President Bush's Proposed Temporary Worker Program*, 7 SCHOLAR 183, 202 (2005).

246. *See id.* at 203.

247. *Id.*

248. *See id.*

249. Mayerle, *supra* note 227, at 578.

250. *See id.*

nerable to abuse, particularly the exploitation of illegal labor contractors, called “coyotes,” who smuggle illegal workers into the U.S. and provide them with very low pay and pitiful housing.<sup>251</sup> Even illegal workers who entered the country on their own are vulnerable to abuses, since complaining about working conditions and amenities puts them at risk for being fired or reported to the INS. Because of the dependency already discussed, both legal and illegal farm workers are unwilling to risk losing their jobs by attempting to enforce these rights.

Accordingly, a long-term solution to the problem of American agriculture needs to enforce farm workers’ rights for them. This is true for foreign as well as domestic workers, who can likewise find themselves in desperate situations. Not only will improving working conditions and protecting workers’ rights help to restore the domestic farm worker base, but it will also extend a humane hand to the laborers whose backs the U.S. has depended upon for over a century.

## VI. CONCLUSION

Unfortunately, it looks as though United States agriculture will continue down the same short-sighted path it has been on for the last century. Though proposals calling for a new guest worker program such as President Bush’s January 7, 2005 proposal are unlikely to be enacted, continuation of the status quo will lead to more problems for U.S. agricultural production. U.S. dependency on the cheap labor provided by guest workers and illegal immigrants, and their dependency on American agricultural jobs, will continue to grow. In the meantime, U.S. agriculture will become increasingly unable to compete with Third World countries’ production of agricultural goods, due to the appallingly substandard wages they pay (even by American agriculture’s standard). Furthermore, U.S. agriculture will be left in agricultural production’s primitive past – hand harvesting – as other First World countries mechanize production of agricultural goods. Eventually, this path will lead to the demise of the American agricultural industry. Some believe the end of American agriculture is inevitable.<sup>252</sup> If the United States continues down this path, that is certainly true.

Reducing American agriculture’s dependency on cheap immigrant labor and mechanizing the harvesting process is the United States’ only hope of salvaging its agricultural industry. This process will require the investment of much time and money. It will require lead-time, in which to plan and implement the various necessary programs (i.e., a program to verify workers’ legal status, an

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251. Jingle Davis, *Vidalia Arrest Site Stuns INS Officials*, COX NEWS SERVICE, Apr. 15, 1999.

252. *See e. g.* BLANK, *supra* note 8.

enforcement program through the INS, etc.).<sup>253</sup> A crucial transition period will also be necessary, during which a labor supply will be needed.<sup>254</sup> This should not pose a problem given the large supply of willing, albeit mostly illegal, supply of farm workers currently in the country.

This process begins with the mechanization of agricultural production. Government, universities, and private corporations will need to invest major resources in the research, development, and implementation of mechanical harvesting technology.

Next, the domestic farm worker base must be restored. The development of labor-aids, labor-saving machines, and robotic systems will greatly assist this process greatly, by making work easier and more highly skilled, requiring fewer workers, and increasing wages for those who remain.

Simultaneously, the needs of farmers must be addressed and the supply of illegal labor needs to be controlled. This will occur through stricter enforcement of employer sanctions and workplace arrests of illegal workers, as well as helping farmers to verify the legal status of their employees. For this to occur the INS needs more financial resources and political support and a centralized program for the verification of workers' legal status needs to be implemented.

Finally, conditions on farms need to improve and workers' rights must be protected. United States agriculture cannot be sustained with an unwilling or coerced workforce. Because whether they stay in the United States is directly related to their employability, farm workers are unable to protect themselves against workplace violations such as illegally low wages or substandard living conditions. Therefore, farm workers' rights need to be enforced on their behalf. Improved conditions for farm workers, foreign and domestic, will help to usher in the transition from dependency on foreign laborers to the mechanization of the harvesting process and restoration of the domestic farm workforce.

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253. See Sarig et al., *supra* note 10.

254. See *id.*

United States agriculture has a long road ahead. But it will not succeed without the support of government, educational and research institutions, private corporations, and especially politicians. President Bush is correct in believing that “our nation needs an immigration system that serves the American economy, and reflects the American Dream.”<sup>255</sup> He is incorrect insofar as he believes a new guest worker program is the way to go about accomplishing that goal. The crucial step is undoubtedly a major implementation of harvest mechanization. It is said technology is the future. The American agricultural sector must begin to utilize 21st century technology in its production process, or accept that it has no future here.

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255. President George W. Bush, *supra* note 2.