Minimum-Age Requirement for Certification to Use Restricted Use Pesticides (RUP)

Executive Summary

Currently, 76% of the states have no age minimums for issuing private applicator certifications and 39% of the states have no age minimums for commercial applicator certifications. CTAG believes that a minimum-age should be established for obtaining certificates to purchase, apply or supervise the use of RUPs. Adopting this proposal will: reduce the risk to youth from occupational acute pesticide exposure, improve regulatory enforcement involving minors, help to avoid liability from conflicts with federal and state child labor laws, and it will reduce public criticism of the program should a high profile incident occur. Establishing a minimum age requirement would not drastically reduce the youth labor pool in either agriculture or other major pesticide use industries and it does not preclude youth from participating in pesticide education programs. Therefore, the Environmental Protection Agency (EPA), in cooperation with state lead agencies (SLA), should implement a ***minimum-age restriction of 18 years for commercial applicators and a minimum-age of 16 years for private applicators, with the ability to address hardship situations.***

Perspective

The pesticide applicator certification program was established in 1972 with the Federal Insecticide, Fungicide, Rodenticide Act (FIFRA). Thirty years ago, lifestyles were more closely related to agriculture and the use of pesticides as a means to help produce food. Today, we are predominantly an urban society and with this comes more fear of pesticides. One tool, which the regulatory and educational communities point to as helping to show how pesticides are used responsibly, is the certification program. As society becomes more skeptical, simple things, such as a lack in regulations for minimum age requirements for certification, can become points of public criticism.

Although the certification program has not drawn national attention or criticism because of this, there is an opportunity to be proactive to avoid controversy. A reasonable and mostly painless means is to set a national minimum age requirement for certification of pesticide applicators of restricted use pesticides (RUPs).

Background

The legal statutes that call for certification to use RUPs (FIFRA and 40 Code of Federal Register Part 171) do not impose age restrictions. Congress did not mandate a minimum age in 1972 because concern was expressed that this would effectively remove youth from the agricultural workforce. (At that time, youth played a much more prominent role in agriculture than it does today.) Therefore, this decision was left for each state to decide.

Two CTAG surveys were conducted with SLA personnel to assess the status of state-specific age requirements for certification. The results show that many states do not require a minimum age for certification.

The first survey assessed current state age restrictions. All but one state responded. The percent of states that lack minimum-age limits for certification is 76% for private applicators and 39% for commercial applicators. For the states with minimum-age limits, the requirements are as follows:

- Private applicator (24%)
    - age 15 = 1 state
    - age16 = 10 states
    - age 17 = 1 state
    - age 18 = 15 states

- Commercial applicator (61%)
    - age16 =6 states
    - age 18 = 24 states

The other survey, with 53 SLA responses, found that an overwhelming 98% recommended a minimum-age requirement. Twenty-six indicated the minimum age should be 18; twelve indicated it should be 16; a few others indicated it should be lower. However, when asked if the minimum age should be different for commercial versus private, twenty-six (49%) of the 53 responded yes, the others took no position. Those recommendations were as follows:

- Private applicator – age 16 = 18 agree
- Commercial applicator – age 18 = 19 agree
- Other responses – 7 responses
- No position – 30 responses

Establishing a minimum age was also discussed in sessions led by CTAG at the 2003 North American Pesticide Applicator Certification and Safety Education Workshop in Hawaii and at the spring 2004 State FIFRA Issues Research and Evaluation--Pesticide Operations and Management working committee meeting in Virginia. The discussions focused on the specific age desirable for applicator certification and problems caused by under-aged applicators. It was the consensus of participants in both meetings that

the minimum age for commercial certified applicators, unless some unforeseen hardship could be shown, should be 18. For private certified applicators, consensus was more difficult to discern, but most participants felt the minimum age should be at least 16.

What are the downside risks to maintaining the status quo?

1. Youth will continue to be placed at a greater risk of pesticide injury. While many youth are capable of responsible pesticide use, they are 1.71 times more likely than adults to suffer acute poisoning when making occupational pesticide applications. This increase in risk is documented in a study conducted on 1988 to 1999 poison control center data and is published in the April 2003 issue of the American Journal of Public Health: Vol. 93, No. 4, Pages 605-610. (See addendum for details.)
2. Youth cannot be treated as adults for purposes of enforcement actions. Under the Miranda decision, the U.S. Supreme Court has ruled that youth should be afforded special deference for purposes of statements to law enforcement agencies. Additionally, in 11 states, youth may not be interviewed without prior consent of an adult guardian. The balance of the states, may or may not require consent depending upon the circumstances of the interview. This fact has resulted in three pesticide enforcement actions being dropped in Arizona from 1999 to 2004. (See addendum for details.)
3. State pesticide certification laws in agricultural situations may be in conflict with federal and state child labor laws. An example of this can be found in Minnesota (see addendum). There are no age minimums for certification in this state. So, theoretically, a 15 year old may become certified by the SLA to purchase or apply ANY pesticide. However, youth employed under the age of 16 are barred by federal and state law from applying Category I & II pesticides (those carrying a Danger or Warning signal word on the label). This inconsistency complicates pesticide regulation and introduces the possibility of liability for the SLA in the event of a serious incident.
4. Pesticide applications made by youth under the age of 16 in non-agricultural situations are NOT currently regulated under federal child labor laws. (See addendum for details.) The absence of a federal minimum age can result in contradictory and confusing situations in some states. In Minnesota, for example, the Commissioner of Labor and Industry defines nearly all pesticides as “Hazardous Materials.” Consequently, no one under 18 may be employed in a non-agricultural setting where pesticides are used, stored, handled or applied unless the employer can demonstrate none of the products used meet the state definition of “Hazardous Materials.” However, at least theoretically, a 15 year old could become certified by the SLA to purchase or apply ANY pesticide, including Category I & II pesticides, in non-agricultural employment situations. This sort of contradiction complicates pesticide regulation and introduces the possibility of liability for the SLA if a serious incident were to occur.

5. The potential exists for a high profile incident to occur which could attract negative attention to the pesticide industry as a whole. If this happened, the general public would force decision makers to act hastily and without proper consultation with the regulated community. The results would then be more onerous laws and regulations.

Q & A regarding adoption of age minimums

If a minimum age is adopted, what will be the impact on youth working in agriculture or other industries?

In about 1/3 of the states, the impact would be minimal because they have adopted 18 years as their minimum for both commercial and private certification. However, the balance of the states would need to enact laws and/or rules to establish age minimums. To lessen the regulatory impact on these states, grandfather provisions could be established to ease the transition to age minimums for existing certificate holders.

Finally, retention of youth in the agricultural workforce (and other pesticide application industries) could be maintained by implementing appropriate provisions for direct supervision and responsibility like those listed below from North Dakota:

- **Supervision -** The certification requirements of this chapter do not apply to a competent person applying general use pesticides under the direct supervision of a commercial applicator…..The certification requirements of this chapter do not apply to a competent person applying restricted use pesticides under the direct supervision of a private applicator…..

- **Responsibility -** When construing and enforcing the provisions of this chapter, the act, omission, or failure of any officer, agent, or other person acting for or employed by any person must in every case be also deemed to be the act, omission, or failure of such person as well as that of the person employed.

Will adopting age minimums preclude pesticide education programs from offering training opportunities to youth?

No. It would simply bar them from holding a certification. For example in North Dakota, which requires an 18 year minimum for both commercial and privates, youth routinely attend certification training programs and exams are even administered to them. Upon completion of the course and passing the exam, youth are given a certificate of completion which they may present to the SLA upon their 18th birthday to have the actual certification credential issued.

Do states which have 18 year minimums experience numerous requests for certification of youth?

No. In North Dakota for example, a state with approximately 20,000 certified applicators, no formal requests have been made in over 10 years. Those who inquire either accept the age restrictions without follow-up or are simply happy to enroll in a pesticide safety education program without actually obtaining a certification. The reasons for the lack of rancor is probably due to the availability of options under direct supervision provisions and because of the availability of educational programs for youth.

Recommendation

EPA, in cooperation with SLAs, should implement a ***minimum-age restriction of 18 years for commercial applicators and a minimum-age of 16 years for private applicators, with the ability to address hardship situations.***

Specifically, EPA, through their annual cooperative agreement review process with SLAs, should strongly encourage their partners to:

1. Review state and federal child labor laws for inconsistencies with their current certification program and begin discussions with stakeholders to address them.
2. Establish legally defensible protocols and procedures for handling pesticide enforcement cases involving minors.
3. Implement a minimum-age restriction of 18 for commercial applicators and a minimum-age of 16 for private applicators, with the ability to address hardship situations.

This should be a requirement for approval of a state plan for the certification of private and commercial pesticide applicators. This requirement should be implemented over a three to four-year period to allow those states that lack the required age minimums to build alliances and to implement the necessary authority or legislation. If the states are silent on this issue they can also refer to the federal standard upon final implementation and avoid having to make any changes other than those to their written plan.

Acute Pesticide-Related Illnesses Among Working Youths, 1988–1999

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Objectives. The goal of this study was to describe acute occupational pesticide-related illnesses among youths and to provide prevention recommendations.

Methods. Survey data from 8 states and from poison control center data were analyzed. Illness incidence rates and incidence rate ratios were calculated.

Results. A total of 531 youths were identified with acute occupational pesticide-related illnesses. Insecticides were responsible for most of these illnesses (68%), most of which were of minor severity (79%). The average annual incidence rate among youths aged 15 to 17 years was 20.4 per billion hours worked, and the incidence rate ratio among youths vs adults was 1.71 (95% confidence interval=1.53, 1.91).

Conclusions. The present findings suggest the need for greater efforts to prevent acute occupational pesticide-related illnesses among adolescents. (*Am J Public Health.* 2003;93:605–610)

Work is a common aspect of youths' lives. In fact, the vast majority of young people are, at some time, employed while they are in school. Many of the hazards faced by working youths are receiving increasing attention.[1–3] Although concerns have been raised about pesticide exposures among working youths,[2,4,5] few data are available to support these concerns.

To address the need for more information about the effects of occupational pesticide exposures among young people, we examined the magnitude, incidence, and nature of acute pesticide-related illnesses among working youths. We also compared the rate of such illnesses among youths with the corresponding rate for adults. In this article, in addition to describing the results of our analyses, we provide recommendations for prevention of these illnesses. To our knowledge, ours is the first study to provide population-based estimates of the occurrence of acute occupational pesticide-related illness among young people.

METHODS

Data were obtained on individuals 17 years or younger who developed acute pesticide-related illnesses while working. We excluded cases involving nonoccupational exposures, attempted suicides, intentional malicious use (e.g., attempted homicide), or exposure for a psychotropic effect. In addition, cases caused by disinfectants were excluded, because such cases are not tracked in many states.

Information on cases was provided by the Toxic Exposure Surveillance System (TESS), the California Department of Pesticide Regulation, the California Department of Health Services, the Texas Department of Health, the Washington State Department of Health, the Oregon Department of Human Services, the New York State Department of Health, the Florida Department of Health, the Louisiana Department of Health and Hospitals, and the Arizona Department of Health Services. TESS, maintained by the American Association of Poison Control Centers, collects poisoning reports submitted by approximately 85% of US poison control centers.[6]

Each of the state agencies that contributed data on cases maintains its own surveillance system for acute pesticide-related illness and injury. It should be noted that 4 states neither have poison control centers that participate in TESS nor have in place a state-based surveillance system (Maine, Mississippi, South Carolina, and Vermont).

The periods for which acute pesticide-related illness and injury surveillance data were available varied by agency. TESS data were available for 1993 through 1998. Surveillance data from Texas are considered complete as of 1987; Oregon, as of 1988; New York and Washington State, as of 1991; Arizona and Louisiana, as of 1992; Florida, as of 1998; and California, as of 1989. Data from state agencies were collected through 1999.

The information collected by TESS and the state agencies includes date of illness, information on the ill individual (sex, age, signs, and symptoms), whether the illness occurred as a result of workplace exposures, and the pesticide or pesticides that produced the illness. Additional information collected by the state agencies but not by TESS includes race/ethnicity, occupation, industry, activity of the individual during the exposure, type of exposure (e.g., drift, direct spray, or exposure to a spill or leaking container), and whether personal protective equipment was used. For the present analysis, we defined use of personal protective equipment as use of goggles, face shields, gloves, or respirators.

The Environmental Protection Agency (EPA) acute toxicity category was sought for all pesticides responsible for illness. EPA classifies pesticide products into 1 of 4 acute toxicity categories based on established criteria. Pesticides having the highest toxicity are placed in category I, and those having the lowest are included in category IV. In the case of the present analyses, the acute toxicity category of the pesticide product responsible for causing an illness was often provided by the contributing state agency. When not provided, information on acute toxicity category was retrieved from a data set made available by EPA.

Information on illness severity was sought for all eligible cases. Except for Washington State and Louisiana, state agencies did not determine severity levels for the cases they identified. TESS criteria were used to assign

severity levels to the cases provided by TESS and the other state agencies.[6] *Minor effects* consisted of minimally bothersome health effects that generally resolved rapidly. *Moderate effects* consisted of non–life-threatening health effects that were more pronounced or prolonged than minor effects or of a systemic nature. *Major effects* consisted of life-threatening health effects or those resulting in "significant residual disability or disfigurement."

To avoid repeated inclusion of the same case, we compared cases provided by each state agency with cases included in TESS. Cases that matched each other in terms of year and state of exposure, age, sex, and pesticide active ingredient were assumed to involve the same individual. Such individuals were included in the state agency totals only.

Case Definition

Cases were included only if health effects developed subsequent to pesticide contact and these effects were evaluated by poison control or state surveillance professionals as consistent with the known toxicology of the pesticide product. TESS relies on the experience and judgment of poison control center specialists managing specific cases to determine whether the affected individuals have symptoms and signs consistent with the pesticide exposure. No standardized criteria are used to make this determination. A full description of the standardized case definition used by each state agency is beyond the scope of the present article, but this information is available elsewhere.[7]

Data Analysis

SAS software (SAS Institute Inc, Cary, NC) was used for data management and in conducting χ^2 analyses to examine categorical data. Incidence rates among subjects aged 15 to 17 years were calculated for the period 1993 through 1998. The numerator was the total number of illness cases; the denominator was obtained from estimates of hours worked derived from the 1993 through 1998 administrations of the Current Population Survey.[8,9] The Current Population Survey does not provide data on workers younger than 15 years. In calculating incidence rates for young workers, it is preferable to use hours worked rather than employment counts.[9] The reason is that youths work fewer hours per week, and fewer weeks per year, than adults. Using employment counts would underestimate the risk of acute pesticide-related illnesses among young people.

Average annual incidence rates were calculated for young people employed in agricultural (Bureau of the Census industry codes 010–030) and nonagricultural (all other Census Bureau industry codes) industries. Because information on industry was not available from TESS, the assumption was made that the proportion of TESS cases involving individuals employed in agriculture was equal to the proportion found among the cases reported by state agencies. Male and female incidence rates and rates for each of 4 US regional areas were also calculated.

We calculated risks of acute pesticide-related illness among individuals aged 15 to 17 years by comparing rates among these youths with those among adults aged 25 to 44 years.[10] The data on adults were obtained from the same agencies that provided the data on youths, with the same exclusions applied. The age range of the adult comparison group was chosen a priori and was based on methodology used previously in examinations of occupational fatalities.[11] We calculated the incidence rate ratio as the youth–adult ratio of number of acute pesticide-related illnesses per hour worked. A ratio greater than 1 would suggest that youths have a higher risk of acute pesticide-related illnesses than adults. Confidence intervals (CIs) were calculated according to methods described by Rothman.[10]

RESULTS

During 1988 to 1999, 531 youths were identified with acute occupational pesticide-related illnesses. Of these individuals, 428 were identified by TESS and 103 by state agencies (9 cases were identified by both TESS and a state agency). The median age among these young people was 16 years (range: 6–17 years), and 122 (23%) were 13 years or younger; 68% were male. Information on race and ethnicity was available for 42 of the patients identified by state agencies (TESS does not collect this information). All 42 were White, and 21 of these individuals (51%) also reported Hispanic ethnicity. Of the 524 cases for which month of illness was known, 368 (70%) occurred between May and August.

Between 1993 and 1998, the average annual incidence rate among youths aged 15 to 17 years was 20.4 per billion hours worked (Table 1). Incidence rates have decreased in recent years (Table 2). The incidence rate was much higher among those employed in agriculture (196.9/billion hours worked) than among those not so employed (7.0/billion hours worked), and the rate was higher among male (27.9/billion hours worked) than among female (11.5/billion hours worked) youths. The rate was highest among those working in Western-region states (Table 3).

The risk of acute occupational pesticide-related illness was higher in youths than in adults (Tables 1 and 2). Overall, the incidence rate ratio among working youths compared with adults was 1.71; the ratio was lower among young people employed in agriculture (0.74). Results showed that incidence rate ratios were highest in the Midwest and lowest in the West (Table 3).

Information on the pesticides responsible for illnesses is provided in Table 4. Insecticides were responsible for 68% of the illnesses. Among the insecticides, organophosphates (142 cases) and pyrethroids (57 cases) were most commonly responsible. Specific organophosphate insecticides included chlorpyrifos (40 cases), diazinon (23 cases), and malathion (12 cases). Among the specific pyrethroids associated with illnesses were cypermethrin (14 cases) and cyhalothrin (12 cases). Glyphosate (33 cases) and 2,4-dichlorophenoxyacetic acid (16 cases) were the specific herbicides most commonly associated with youth illnesses.

Information on EPA acute toxicity category was available for 432 (81%) of the affected individuals. Of these youths, 51 (12%) were exposed to acute toxicity category I pesticides, 90 (21%) were exposed to category II pesticides, and 291 (67%) were exposed to category III pesticides. The percentage of individuals exposed to category I and category II pesticides was higher among those employed in agricultural industries (67%; 44 of 66 cases) than among those employed in nonagricultural industries (41%; 12 of 29 cases; $P=.02$).

TABLE 1—Total Numbers of Cases of Acute Occupational Pesticide-Related Illness, Estimates of Hours Worked, Incidence Rates, and Incidence Rate Ratios, by Industrial Sector, 1993–1998

	Working Youths Aged 15–17 Years			Working Adults Aged 25–44 Years			
Industrial Sector (Bureau of the Census Codes)	No. (%) With Acute Occupational Pesticide-Related Illnesses	Estimated Total No. of Hours Worked[a]	Incidence Rate[b]	No. (%) With Acute Occupational Pesticide-Related Illnesses	Estimated Total No. of Hours Worked[a]	Incidence Rate[b]	Incidence Rate Ratio (95% Confidence Interval)[c]
All	333 (100)	16 328	20.4	9599 (100)	804 785	11.9	1.71 (1.53, 1.91)
Agriculture (010–030)	213 (64)[d]	1 082	196.9	5367 (56)	20 261	264.9	0.74 (0.65, 0.85)
Nonagriculture (all other codes)	107 (32)[d]	15 246	7.0	4232 (44)	784 524	5.4	1.30 (1.07, 1.58)

[a]In millions of hours.
[b]Per billion hours worked.
[c]Compares the risk of an acute occupational pesticide-related illness among working youths with that among adults in the same industrial sector.
[d]A total of 4% of working youths had no information on industry, and these individuals were not included in analyses stratified by industrial sector.

TABLE 2—Numbers of Cases of Acute Occupational Pesticide-Related Illness, Estimates of Hours Worked, Incidence Rates, and Incidence Rate Ratios, by Year, 1993–1998

	Working Youths Aged 15–17 Years			Working Adults Aged 25–44 Years			
Year	No. With Acute Occupational Pesticide-Related Illnesses	Estimated Total No. of Hours Worked[a]	Incidence Rate[b]	No. With Acute Occupational Pesticide-Related Illnesses	Estimated Total No. of Hours Worked[a]	Incidence Rate[b]	Incidence Rate Ratio (95% Confidence Interval)[c]
1993	46	2 366	19.4	1504	133 066	11.3	1.72 (1.28, 2.31)
1994	51	2 636	19.3	1571	131 774	11.9	1.62 (1.23, 2.14)
1995	74	2 752	26.9	1809	132 993	13.6	1.98 (1.57, 2.50)
1996	60	2 794	21.5	1697	134 419	12.6	1.71 (1.32, 2.21)
1997	49	2 800	17.5	1535	136 483	11.2	1.56 (1.17, 2.07)
1998	53	2 980	17.8	1483	136 050	10.9	1.63 (1.24, 2.14)
Total	333	16 328	20.4	9599	804 785	11.9	1.71 (1.53, 1.91)

[a]In millions of hours.
[b]Per billion hours worked.
[c]Compares the risk of an acute occupational pesticide-related illness among working youths with that among working adults.

Most of the cases of acute occupational pesticide-related illness among youths were of minor severity (418 of 531; 79%). Severity was moderate in 20% of the cases and major in 1% (Table 4). No fatalities were identified. Proportions of cases within a given severity category were similar across the pesticide functional classes (P=.48) and EPA acute toxicity categories (P=.38). A total of 236 (44%) patients were evaluated and treated in a health care facility; 13 (3%) were hospitalized, 5 of whom were treated in an intensive care unit. When all pesticides were combined, the most commonly observed effects involved the gastrointestinal system (28% of youths reported health effects involving this system), followed by dermal effects (23%).

We also identified job tasks associated with illness. Seventy-one percent of subjects (70 of 99) were employed in agriculture (industry and occupation were available for only 99 of the cases identified by state agencies and for none of the TESS cases). Of the 70 agricultural workers affected, 15 (21%) were exposed while directly handling pesticides (i.e., applying [n=13], disposing of [n=1], or mixing and loading [n=1] pesticides), and 55 (79%) were exposed while doing routine work that did not involve direct handling of pesticides.

Only 3 youths appeared to be working in violation of the Fair Labor Standards Act (FLSA). These 3 youths were younger than 16 years, were employed on farms not owned or operated by their parents, and were applying or handling EPA acute toxicity category I or II pesticides. Among the 55 agricultural workers not handling pesticides, 33 (60%) were exposed while handling plant products previously sprayed with pesticides, 9 (16%) were exposed to drift from pesticides applied to the fields where they

TABLE 3—Numbers of Cases of Acute Occupational Pesticide-Related Illness, Estimates of Hours Worked, Incidence Rates, and Incidence Rate Ratios, by US Region, 1993–1998

	Working Youths Aged 15–17 Years			Working Adults Aged 25–44 Years			
US Region	No. With Acute Occupational Pesticide-Related Illnesses	Estimated Total No. of Hours Worked[e]	Incidence Rate[f]	No. With Acute Occupational Pesticide-Related Illnesses	Estimated Total No. of Hours Worked[e]	Incidence Rate[f]	Incidence Rate Ratio (95% Confidence Interval)[g]
Midwest[a]	89	5 220	17.0	1167	194 783	6.0	2.83 (2.28, 3.51)
Northeast[b]	28	2 589	10.8	938	150 048	6.3	1.71 (0.93, 3.16)
South[c]	125	5 379	23.2	2743	284 187	9.7	2.39 (2.00, 2.86)
West[d]	88	3 140	28.0	4688	175 767	26.7	1.05 (0.66, 1.66)
Total[h]	333	16 328	20.4	9599	804 785	11.9	1.71 (1.53, 1.91)

[a]Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin.
[b]Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont.
[c]Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia.
[d]Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.
[e]In millions of hours.
[f]Per billion hours worked.
[g]Compares the risk of an acute occupational pesticide-related illness among working youths with that among working adults.
[h]The sum of the number with acute pesticide-related illnesses is less than the total because 3 youths and 63 adults had no information on state of residence.

TABLE 4—Numbers of Youths With Acute Occupational Pesticide-Related Illnesses, by Functional Class of Pesticides and Severity, 1988–1999

Pesticide Functional Class	Minor Severity, No. (%)	Moderate Severity, No. (%)	Major Severity, No. (%)	Total, No. (%)
Insecticides	286 (80)	68 (19)	5 (1)	359 (68)
Herbicides	89 (78)	23 (20)	2 (2)	114 (21)
Fungicides	16 (73)	6 (27)	0 (0)	22 (4)
Insect and moth repellents	15 (79)	4 (21)	0 (0)	19 (4)
Fumigants	7 (70)	3 (30)	0 (0)	10 (2)
Rodenticides	5 (71)	2 (29)	0 (0)	7 (1)
Total	418 (79)	106 (20)	7 (1)	531 (100)

worked, and 8 (15%) were exposed to off-target drift from pesticides applied to neighboring fields.

The remaining 29 youths were not employed in agriculture. Five (17%) of these youths were applying pesticides at the time they were exposed, and they were employed as general laborers or in maintenance, suggesting that pesticide application was not their primary job activity. An additional 12 (41%) youths were employed as clerks or stock workers in the retail sector. Three of these young people were exposed while cleaning up pesticides that had spilled from a store shelf, and one was exposed while changing a canister in an automatic insecticide dispenser. The remaining 13 (45%) youths were employed in a variety of sectors.

Information on use of personal protective equipment was available for only 70 (68%) of the 103 cases reported by state agencies. Such equipment was used by 16% of the youths involved in these episodes. Proportions of young people using protective equipment did not differ significantly according to EPA acute toxicity category ($P=.59$). Nineteen percent (9 of 48) of youths employed in agriculture used protective equipment, as compared with 10% (2 of 21) of youths employed elsewhere ($P=.34$). Only 25% of those who directly handled pesticides used personal protective equipment.

DISCUSSION

The higher risks of acute occupational pesticide-related illnesses among youths than adults observed in this study suggests that current regulations may offer insufficient protection for working youths. There are several potential explanations for these higher risks. Young people are generally less experienced and assertive than adults, and thus they may not question assignments that place them at risk for pesticide exposure.[2] Youths also are often involved in part-time and seasonal work and, as a result, may receive less training. In addition, they may be more sensitive to pesticide toxicity and may manifest acute illnesses at lower exposure thresholds.[12] Because these acute illnesses affect young people at a time before they have reached full developmental maturation, there is also concern about unique and persistent chronic effects.

Youths employed in agriculture appear to have far greater incidence rates of acute occupational pesticide-related illnesses than youths employed elsewhere. These higher rates may be partly explained by the high usage of pesticides in the agriculture industry. In 1996–1997, the agriculture industry used 77% of the total US volume of active pesticide ingredients.[13] In contrast, agricultural employment was responsible for only 7% of total hours

worked by individuals aged 15 to 17 years (Table 1).

The risk of pesticide poisoning in the agricultural sector was lower among youths than among adults. However, this risk comparison and the others provided should be interpreted with caution, because they represent crude estimates. For example, in terms of our denominator, we do not know how many of the hours worked involved pesticide exposure. We assumed that adults and young people have the same probability of pesticide exposure per hour worked. Unfortunately, we have no data to support or refute this assumption, because the number of pesticide-exposed workers and the duration of their exposure are unknown. This lack of information also precludes our identifying the specific industries and occupations involving the greatest risks.

Among the 99 youths for whom information was available on industry, occupation, and activity at the time of pesticide exposure, only 3 appeared to be working in violation of the FLSA. On the basis of this finding that 97% of the young people affected were engaged in legal activities under the FLSA, we recommend that the act be strengthened to prevent such acute illnesses. According to the FLSA, 16 years is the minimum age at which individuals can be employed in an agricultural job that involves handling or applying acutely toxic agricultural chemicals. Exempted from these prohibitions are youths younger than 16 years who are employed by and working on farms owned or operated by a parent or guardian. In addition, youths are not explicitly prohibited from nonagricultural employment that involves handling or applying pesticides.

To protect young farmworkers, the Worker Protection Standard may also need to be strengthened and better enforced. Among the provisions of this standard are restrictions on individuals' entering a pesticide-treated field before expiration of the restricted entry interval (the period required to elapse before one can reenter a field without personal protective equipment) and requirements for training of workers on the hazards associated with pesticides. We found that among the ill youths employed in the agricultural industry, 33 were exposed through contact with treated surfaces, most commonly by entering farm fields recently sprayed with pesticides (n=30). Three of these cases resulted from violations of restricted entry interval requirements, whereas 18 cases occurred despite compliance with these requirements; this latter finding suggests that longer intervals may be required to protect youths. The unique susceptibility of children was not considered in the establishment of restricted entry intervals. In comparison with adults, young people's greater relative body surface area to body mass ratio can lead to more absorption of pesticides.[14]

Our data and analysis involve several potential limitations. The illness rates we observed are probably underestimates, because a large number of cases among youths are not ascertained. Many cases are never identified because the youths affected neither seek medical care nor contact appropriate authorities (e.g., poison control centers). Furthermore, because the signs and symptoms of acute pesticide-related illnesses are not pathognomonic, many youths who seek medical care may not be correctly diagnosed and thus are not classified as having such illnesses.

Although 30 states require reporting of occupational pesticide-related illnesses, many cases, even those occurring among young people who are correctly diagnosed, are not reported.[7] One reason is that only 8 states have surveillance programs for these illnesses, and the fact that 7 of these 8 states are located in the West or South region helps to explain their higher incidence rates. However, even in these 8 states cases are underreported. For example, when we compared state agency and TESS data from these states, only 14% of the TESS cases were also included in the state agency data (i.e., for the years 1993–1998, among those younger than 18 years or aged 25 to 44 years). In the remaining 42 states, only TESS data are available to obtain counts of occupational pesticide-related illnesses.

Reliance on poison control center data can also lead to underascertainment. Because reporting is voluntary, many poisoning cases do not result in calls to the poison control center. The literature suggests that fewer than one third of poisoning cases treated in health care facilities are reported to poison control centers.[15,16] In addition, we found that in states with availability of both TESS data and data from a state agency, TESS identified only 10% of the cases identified by the state agencies (this comparison was made according to the parameters just described).

Finally, we suspect that some working youths may provide misleading information about their age. For example, one individual who became ill after entering a carbofuran-treated field before the expiration of the restricted entry interval initially reported his age as 19 years. Only later did he concede that his true age was 13 years. Therefore, the data we provide should be considered as representing minimum estimates of the true magnitude of the problem.

A related limitation is that incidence rate ratios may be affected by reporting bias if there is differential reporting of cases among youths relative to adults. We found that the elevated risk observed among youths in comparison with adults was confined to cases identified by TESS (incidence relative risk [IRR]=2.18; 95% CI=1.94, 2.45). Among cases reported by state agencies, the rate among youths was similar to that among adults (IRR=0.94; 95% CI=0.71, 1.24). This difference in risk may be due to biased reporting, either to poison control centers (i.e., these centers may be receiving fewer adult reports than child reports) or to state agencies (i.e., the risks observed in the TESS data may be closer to the true values, and state agencies may see greater underreporting of pediatric cases). That there is less underreporting to poison control centers of pediatric poisoning deaths than adult poisoning deaths suggests that TESS may be susceptible to reporting bias.[6] Conversely, the fact that 27% of the pediatric TESS cases occurred among youths younger than 14 years, as compared with only 6% of state agency cases, suggests that state agencies may be hampered in their ability to identify cases among working children.

A final limitation is that information on industry and occupation was not available for TESS cases. Use of different assumptions about the proportion of TESS cases in which the affected individuals are employed in agriculture can lead to different incidence rates by industry. For example, our analysis of youths aged 15 to 17 years who were in-

cluded in both the TESS and the state agency data (n=9) revealed that 4 (44%) of these young people were employed in agriculture, 3 (33%) were employed in nonagricultural industries, and 2 (22%) had missing employment information. When these percentages were assigned to the TESS cases, the incidence rates for working youths in agricultural and nonagricultural industries were 146.0 and 7.2 per billion hours worked, respectively. These findings suggest that, relative to the incidence rates presented in Table 1, rates may be lower among those employed in agriculture and higher among those employed in nonagricultural industries.

In conclusion, recognizing that many occupational pesticide-related illnesses can be prevented, we offer the following recommendations:

• Improvements in surveillance are needed to overcome the limitations of underreporting. It would be useful if each state conducted surveillance of acute pesticide-related illnesses and injuries.
• The Bureau of Labor Statistics should improve collection of youth employment data, which would provide more accurate denominator data for calculating injury and illness rates.
• Because the signs and symptoms of acute pesticide-related illnesses may be difficult to link to pesticide exposure, health care professionals should be reminded to consider environmental and occupational exposures.
• Information on child labor laws and adolescent occupational hazards should be more effectively disseminated to students, parents, school officials, and employers.
• The FLSA and the Worker Protection Standard should be reviewed and appropriately revised to ensure that workers younger than 18 years are protected against toxic pesticide exposures. ■

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This article was accepted March 30, 2002.

Contributors

G.M. Calvert was the primary author and took the lead on data analysis and writing the article. The remaining authors assisted in data acquisition and interpretation and provided critical revisions of the article.

Acknowledgments

We wish to thank Anne Mardis, MD, for providing the Current Population Survey data, Charles Mueller for his statistical advice and Jerry Blondell, PhD, for providing access to the TESS data.

Human Participant Protection

No protocol approval was needed for this study.

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Wednesday, July 21, 2004

Frequently Asked Questions

Confidentiality Issues

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How many states use the totality of the circumstances test to decide whether or not a juvenile has validly waived his or her *Miranda* rights to representation by counsel and privilege against self-incrimination?

As of the end of the 2001 legislative session, 39 states use the totality of the circumstances test: Alabama, Alaska, Arizona, Arkansas, California, Delaware, District of Columbia, Florida, Georgia, Hawaii, Idaho, Illinois, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, Wisconsin, and Wyoming.

Szymanski, L. Juvenile Waiver of *Miranda* Rights: Totality of the Circumstances Test. *NCJJ Snapshot* 7(1). Pittsburgh, PA: National Center for Juvenile Justice, 2002.

What is the totality of the circumstances test?

The totality of the circumstances test requires the court to consider a number of factors (not just the presence of absence of a concerned adult) before concluding that the juvenile has knowingly and willingly waived his or her *Miranda* rights. These factors vary from state to state and include: the juvenile's age; the juvenile's education; the juvenile's knowledge of both his or her rights and the substance of the charge against them; whether the juvenile is held incommunicado or allowed to consult with relatives, friends, or an attorney; fair treatment by the police; the juvenile's prior experience with the criminal justice system and police interrogation.

Szymanski, L. Juvenile Waiver of *Miranda* Rights: Totality of the Circumstances Test. *NCJJ Snapshot* 7(1). Pittsburgh, PA: National Center for Juvenile Justice, 2002.

How many states us the interested adult test to decide whether or not a juvenile has validly waived his or her *Miranda* rights to representation by counsel and privilege against self-incrimination?

As of the end of the 2001 legislative session, 11 states use the interested adult test (sometimes called the concerned adult test,

the friendly adult test, or the per se rule): Colorado, Connecticut, Indiana, Kansas, Massachusetts, Montana, North Carolina, Oklahoma, Vermont, and West Virginia.

Szymanski, L. Juvenile Waiver of *Miranda* Rights: Interested Adult Test. *NCJJ Snapshot* 7 (2). Pittsburgh, PA: National Center for Juvenile Justice, 2002.

What is the interested adult test?

The interested adult test requires courts considering the voluntariness of juvenile confessions to consider whether the juvenile had an opportunity to consult with an adult interested in his or her welfare, either before or during the interrogation. The thinking is that parents or other adults are in a position to help juveniles in understanding their rights, acting intelligently in waiving them, and otherwise remaining levelheaded in the face of police interrogation. The concerned adult rule is particularly relevant in situations where a juvenile has demonstrated trouble understanding the interrogation process, has asked to speak with either his or her parents or a concerned adult, or where the police have prevented the juvenile's parents from speaking with him or her.

Szymanski, L. Juvenile Waiver of *Miranda* Rights: Interested Adult Test. *NCJJ Snapshot* 7 (2). Pittsburgh, PA: National Center for Juvenile Justice, 2002.

How many states us the per se age test to decide whether or not a juvenile has validly waived his or her *Miranda* rights to representation by counsel and privilege against self-incrimination?

As of the end of the 2001 legislative session, 9 states us the per se age test (sometimes called the Rule of 14): Iowa, Kansas, Massachusetts, Montana, New Jersey, New Mexico, North Carolina, Oklahoma, and West Virginia

Szymanski, L. Juvenile Waiver of *Miranda* Rights: Per Se Age Test. *NCJJ Snapshot* 7(3). Pittsburgh, PA: National Center for Juvenile Justice, 2002.

What is the per se age test?

The per se age test requires courts considering the voluntariness of juvenile confessions to rule that no confession given by a juvenile under a specified age (typically 14) can be admitted into evidence unless the youth is permitted, before or during the interrogation, to consult with a lawyer or other adult, preferably a family member, who is personally interested in the child's well-being. The adult acting on behalf of the juvenile must also be informed of the child's constitutional rights.

Szymanski, L. Juvenile Waiver of *Miranda* Rights: Per Se Age Test. *NCJJ Snapshot* 7(3).

Pittsburgh, PA: National Center for Juvenile Justice, 2002.

Of the states that use this test, what are the age limits?

Of the states that use this rule, New Mexico applies it to juveniles 13 and under; Kansas, Massachusetts, New Jersey, North Carolina, and West Virginia apply the rule to juveniles 14 and under; and Iowa, Montana, and Oklahoma apply the rule to juveniles 16 and under.

Szymanski, L. Juvenile Waiver of *Miranda* Rights: Per Se Age Test. *NCJJ Snapshot* 7(3). Pittsburgh, PA: National Center for Juvenile Justice, 2002.

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Examples of Dismissed Pesticide Enforcement Actions Involving Minors

July, 2004

Case 1

1999: SPCC issues a license for Wood-Destroying Organism Control to a 16 year-old. The minor works for his families firm. The minor engages in the placement of "pretreat tags" at construction sites that indicate that a preconstruction application of termiticide to the soil has occurred. SPCC covert surveillance witnesses the placement of three tags at one subdivision by the minor, but no treatment was performed. The minor is stopped while leaving the scene, interviewed (interview began at 1:12am), and obtained a statement against interest from the minor. An investigation was launched. At hearing, the attorney for the pest control firm and the minor applicator argued that, despite the issuance of a license to the minor, the minor was entitled to protected legal status because of his age. The minor should not have been detained without parental contact and consent. The interview and "forced statement" constituted abuse of the minor. The statement against interest by the minor was inadmissible against both the minor and the company. The Administrative Law Judge agreed, directing the Assistant Attorney General to inform SPCC enforcement personnel that minor's must be interviewed in the presence of their parents or legal counsel. Case was dismissed.

Case 2

2000: SPCC registers an employee of a pest control company that is 15 years old. The minor is the child of the business licensee. The minor engages in the business of structural pest control after the 90-day period permitted by law for operation without a license. SPCC investigates, interviews the minor in the presence of one parent (not the business licensee), and files a case against the company. At hearing, the Assistant Attorney General conceded that the interview of the minor, without the presence of the licensee or licensee's counsel, constituted improper action on the part of SPCC investigators. While action was possible against the minor in this case, because of the minor's statement of participation in unlawful acts, no action was available to SPCC against the business because of the interview. SPCC was also informed that the threshold for action against a minor registered employee was more robust because of the minor's legal status. Case against the business dismissed. Case against the minor registered employee dropped.

Case 3

2004: SPCC investigates the conduct of a business of structural pest control by a 17 year-old in Tempe. He is unlicensed. Investigators interview the parent, not the minor, and take a statement as to the minor's activities. The newspapers become involved, writing editorials and

receiving letters about the heavy-handedness of SPCC. The Assistant Attorney General determines that the agency should not license the minor, therefore the minor could not have been involved in the business of structural pest control – essentially that minor's are free to act without licensing because they really shouldn't be licensed because of the elevated threshold for action against them, their special due process rights, etc, and that since they can't (shouldn't) be licensed their non-pesticidal work is not structural pest control. No pesticide was used in this business and no claim of pesticide misuse was made.

Minimum wage rate

Small employers **$4.90**
Annual gross volume or sales of less than $500,000

Overtime must be paid after 48 hours at 1.5 times the regular rate (Minnesota law).

Large employers* **$5.15**
Annual gross volume or sales of $500,000 or more

Overtime must be paid after 40 hours.
* includes all federally covered employers.

Training wage

A training wage of $4.25 may be paid to new employees under the age of 20 during their first 90 consecutive days of employment. Current employees may not be displaced by new employees covered by the training wage.

Where do I go with questions?

Minnesota Department of Labor and Industry
Labor Standards
443 Lafayette Road N.
St. Paul, MN 55155-4307

Phone: 1-800-DIAL-DLI
(1-800-342-5354)
Phone: (651) 284-5005
Fax: (651) 284-5740

Please visit our Web site:
www.doli.state.mn.us/laborlaw.html

This document can be provided in different forms, such as large print, Braille or audiotape, by calling (651) 284-5005 or (651) 297-4198/TTY.

Legislative change in child labor fines effective Oct. 1, 2000.

Penalties/fines

An employer who fails to comply with provisions of the Minnesota Child Labor Act may be subject to fines. An employer who repeatedly violates the Act's provisions or any other regulation issued pursuant thereto shall, upon conviction, be guilty of a gross misdemeanor.

The 2000 State Legislature increased the penalty structure for all child labor violations effective **Oct. 1, 2000**. For each employee, the new amounts for fines are as follows:

$500 fine for employment of minors under the age of 14

$500 fine for employment of minors under the age of 16 during school hours while school is in session

$500 fine for employment of minors under the age of 16 before 7 a.m.

$500 fine for employment of minors under the age of 16 after 9 p.m.

$1,000 fine for employment of a high school student under the age of 18 in violation of section 181A.04, subd. 6

$500 fine for employment of minors under the age of 16 more than eight hours a day

$500 fine for employment of minors under the age of 16 more than 40 hours a week

$1,000 fine for employment of minors under the age of 18 in occupations hazardous or detrimental to their well-being as defined by rule

$1,000 fine for employment of minors under the age of 16 in occupations hazardous or detrimental to their well-being as defined by rule

$5,000 fine for minors under the age of 18 injured in hazardous employment

$250 fine for minors employed without proof of age

Minnesota Department of Labor and Industry
443 Lafayette Road N.
St. Paul, MN 55155-4307

Legislative change in child labor fines effective Oct. 1, 2000.

A guide to Minnesota's

Child Labor Standards

Labor Standards
443 Lafayette Road N.
St. Paul, MN 55155-4307

Employers should be aware that there are both federal and state child labor laws. Federal laws may differ in certain respects from state law.

This brochure is **not** to be considered a substitute for the statutes and regulations. The same criteria used to determine coverage for the minimum wage and overtime laws are used to determine coverage of child labor laws.

2001

Overview of the Minnesota Child Labor Act

Minimum age

A minor under 14 years of age may not be employed, except:
- as a newspaper carrier, if at least 11 years of age;
- in agriculture, if at least 12 years of age with parent or guardian consent;
- as an actor/actress or model; or
- as a youth athletic program referee, if at least 11 years of age with parent or guardian consent.

Proof of age

The proof of age **must** be maintained as part of the payroll records. Acceptable proof is one of the following: a copy of a birth certificate; a copy of a driver's license or permit; or an age certificate issued by the school.

Hours of work

All employers in the state are covered by state law, but those employers that do $500,000 or more a year in sales or gross revenue are also covered by federal law.

For employers covered by both state and federal requirements, the law that is more strict prevails. (For example, federal law concerning hours of work for 14- and 15-year-olds is more restrictive than Minnesota law, so employers covered by both laws must follow the federal guidelines.)

Minors under 16 may not work

State law (all employers)
- before 7 a.m. or after 9 p.m. with the exception of a newspaper carrier;
- for more than 40 hours a week or more than eight hours per 24-hour period, except in agricultural operations;
- during school hours on school days without an employment certificate issued by the appropriate school officials.

Federal law (employers with annual sales or revenue of $500,000 or more)
- during the school year:
  - — later than 7 p.m.;
  - — more than three hours a day;
  - — more than 18 hours a week.

16- and 17-year-olds may not work

State law (all employers)
- later than 11 p.m. on evenings before school days or before 5 a.m. on school days. With written permission from a parent or guardian, these hours may be expanded to 11:30 p.m. and 4:30 a.m.

Federal law (employers with annual sales or revenue of $500,000 or more)
- no special restrictions on 16- and 17-year-olds concerning hours of work.

Prohibited occupations

The commissioner of Labor and Industry has established as hazardous or detrimental to the well-being of minors the following occupations:

Minors under the age of 18 may not be employed:

Liquor
- To serve, dispense or handle intoxicating liquors that are consumed on the premises;
- To work in rooms where liquor is served or consumed, with the following exceptions: 17-year-olds may perform busing or dishwashing services in a restaurant and 16- and 17-year-olds may provide musical entertainment in a restaurant.

Note: Public safety/liquor control laws prohibit the serving or selling of intoxicating liquor by minors under 18 years of age in a retail intoxicating-liquor establishment.

Hazardous materials
- Where chemicals or other substances are present at excessive temperatures or in injurious, explosive, toxic or flammable quantities.
- Where explosives or fireworks are manufactured, stored, handled or fired.

Hazardous operations
- In or about logging or lumbering operations, paper mills, saw mills, lathe mills or shingle mills; mines, quarries and sand or gravel pits; construction or building projects; ice harvesting operations.
- In building maintenance or repair higher than 12 feet above ground or floor level.
- In oxy-acetylene or oxy-hydrogen welding.

Transportation
- On boats or vessels used for commercial purposes, except if performing guide or other non-operational services.
- As a driver for hire: driving buses, cabs or other passenger-carrying vehicles.
- In certain railway occupations.

Machinery
- Operating or assisting in the operation of power-driven machinery such as:
  - industrial trucks (forklifts);
  - meat saws or grinders, milling machines;
  - punch presses, press brakes and shears;
  - woodworking machinery (circular or radial saws, jointers and shaping machines).
- Operating any non-automatic elevator, lift or hoisting machine.
- Operating, erecting or dismantling rides or machinery in an amusement park, street carnivals or traveling shows, or in the loading or unloading of passengers on rides.

Other
- In aerial or other acrobatic acts.
- As a lifeguard, except for a minor with a Red Cross life-saving certificate (or equivalent) who works under uninterrupted adult supervision.
- In any occupation or activity, or on any site, which is hazardous or dangerous to life, limb or health.

In addition to the prohibitions listed, minors under the age of 16 may not be employed in these areas:

Machinery

To operate or assist in the operation of machinery, such as:
- farm-type tractors and other self-propelled vehicles, except for equipment permitted by a certificate of training under either the 4-H Federal Extension Service or the U.S. Office of Education Vocational Agricultural Training Program;
- laundry, rug cleaning or dry cleaning equipment;
- power-driven snowblowers, lawn mowers and garden equipment;
- drill presses, milling machines, grinders, lathes and such portable power-driven machinery as drills, sanders and polishing and scrubbing equipment for floor maintenance;
- meat slicers, textile-making machines or bakery machinery;
- in oiling, cleaning or maintaining any power-driven machinery;
- in work using pits, racks or lifting apparatus at service stations or in mounting tire on rims;
- in a car wash to attach to or detach car from mechanized conveyor lines or to operate or contact the car while it is connected to the conveyor.

Agriculture
- In any agricultural operation declared by the U.S. Secretary of Labor to be particularly hazardous for employment of children below the age of 16.

Transportation
- In or about an airport landing strip and taxi or maintenance aprons.
- As an outside helper on a motor vehicle.

Operations
- To do welding of any kind.
- As a loader or launcher for skeet or trap shooting.
- In any manufacturing or commercial warehouse.
- In processing plants.

Other
- To lift or carry, or otherwise personally care for, patients in hospitals or nursing homes.
- In walk-in meat freezers or meat coolers, except for occasional entrance.

Exceptions to the above:
- a 17-year-old high school graduate; or
- a minor employed by a business that is solely owned and daily supervised by one or both parents.

A minor may be employed at tasks away from or outside of the area of hazardous operation, equipment or materials.

elaws - Fair Labor Standards Act Advisor

Prohibited Occupations for Agricultural Employees

The child labor rules that apply to agricultural employment depend on the age of the young worker and the kind of job to be performed. The rules are the same for all youth, migrant children as well as local resident children. In addition to restrictions on hours, the Secretary of Labor has found that certain jobs in agriculture are too hazardous for anyone under 16 to perform.

- Once a young person turns **16 years old**, he or she can do any job in agriculture.
- A youth **14 or 15 years old** can work in agriculture, on any farm, but only in non-hazardous jobs.
- A youth **12 or 13 years of age** can only work in agriculture on a farm if a parent has given written permission or if a parent is working on the same farm as his or her child, and only in non-hazardous jobs.
- If the youth is **younger than 12**, he or she can only work in agriculture on a farm if the farm is not required to pay the Federal minimum wage. Under the FLSA, "small" farms are exempt from the minimum wage requirements. "Small" farm means any farm that did not use more than 500 "man-days" of agricultural labor in any calendar quarter (3-month period) during the preceding calendar year. "Man-day" means any day during which an employee works at least one hour. If the farm is "small," workers under 12 years of age can only be employed with a parent's permission and only in non-hazardous jobs.

Hazardous Occupations

The Secretary of Labor has found that the following agricultural occupations are hazardous for youths under 16 years of age. No youth under 16 years of age may be employed at any time in any of these hazardous occupations in agriculture (HO/A) unless specifically exempt. Exemptions (*) will apply to HO/A #1 through #6 under limited circumstances.

*HO/A #1 Operating a tractor of over 20 PTO (Power-Take-Off) horsepower, or connecting or disconnecting implements or parts to such a tractor.

*HO/A #2 Operating or helping to operate any of the following machines (operating includes starting, stopping, adjusting, or feeding the machine or any other activity involving physical contact with the machine):

(a) Corn picker, cotton picker, grain combine, hay mower, forage harvester, hay baler, potato digger, or mobile pea viner;
(b) Feed grinder, crop dryer, forage blower, auger conveyor, or the unloading mechanism of a non-gravity-type self-unloading wagon or trailer; or,
(c) Power post-hole digger, power post driver, or nonwalking-type rotary tiller.

*HO/A #3 Operating, or assisting to operate any of the following machines (operating includes starting, stopping, adjusting, or feeding the machine, or any other activity involving physical contact with the machine):

(a) Trencher or earthmoving equipment;
(b) Fork lift;
(c) Potato combine; or,
(d) Power-driven circular, band, or chain saw.

*HO/A #4 Working on a farm in a yard, pen, or stall occupied by a:

(a) Bull, boar, or stud horse maintained for breeding purposes; or
(b) Sow with suckling pigs, or cow with newborn calf with umbilical cord present.

*HO/A #5 Loading, unloading, felling, bucking, or skidding timber with a butt (large end) diameter of more than 6 inches.

*HO/A #6 Working from a ladder or scaffold at a height of over 20 feet (working includes painting, repairing, or building structures, pruning trees, picking fruit, etc.).

HO/A #7 Driving a bus, truck, or automobile when transporting passengers, or riding on a tractor as a passenger or helper.

HO/A #8 Working inside:

(a) A fruit, forage (feed), or grain storage structure designed to retain an oxygen deficient or toxic atmosphere - for example, a silo where fruit is left to ferment;
(b) An upright silo within 2 weeks after silage (fodder) has been added or when a top unloading device is in operating position;
(c) A manure pit; or,
(d) A horizontal silo while operating a tractor for packing purposes.

HO/A #9	Handling or applying agricultural chemicals if the chemicals are classified under the Federal Insecticide, Fungicide and Rodenticide Act as Toxicity Category I -- identified by the word "Danger" and/or "Poison" with skull and crossbones; or Toxicity Category II -- identified by the word "Warning" on the label. (Handling includes cleaning or decontaminating equipment, disposing of or returning empty containers, or serving as a flagman for aircraft applying agricultural chemicals.)
HO/A #10	Handling or using a blasting agent including, but not limited to dynamite, black powder, sensitized ammonium nitrate, blasting caps and primer cord.
HO/A #11	Transporting, transferring, moving, or applying anhydrous ammonia (dry fertilizer).

More detail about the above listings can be obtained by reviewing the child labor regulations.

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Prohibited Occupations for Non-Agricultural Employees

The child labor rules that apply to non-agricultural employment depend on the age of the young worker and the kind of job to be performed. 14 years old is the minimum age for non-agricultural employment covered by the FLSA. In addition to restrictions on hours, the Secretary of Labor has found that certain jobs are too hazardous for anyone under 18 years of age to perform. There are additional restrictions on where and in what jobs 14-and 15-year-olds can work. These rules must be followed unless one of the FLSA's child labor exemptions apply.

- A youth **18 years or older** may perform any job, whether hazardous or not.
- A youth **16 or 17 years old** may perform any non-hazardous job. (See the list of hazardous occupations below.)
- A youth **14 and 15 years old** may **not** work in the manufacturing or mining industries, or in any hazardous job. (See the list of hazardous occupations below.) In addition, a 14- or 15-year-old may **not** work in the following occupations:
  - Communications or public utilities jobs;
  - Construction or repair jobs;
  - Driving a motor vehicle or helping a driver;
  - Manufacturing and mining occupations;
  - Power-driven machinery or hoisting apparatus other than typical office machines;
  - Processing occupations;
  - Public messenger jobs;
  - Transporting of persons or property;
  - Workrooms where products are manufactured, mined or processed;
  - Warehousing and storage.

A 14- or 15-year-old **may work in retail stores, food service establishments and gasoline service stations.** However, a 14- or 15-year-old **may not** perform the following jobs in the retail and service industries:

- Baking;
- Boiler or engine room work, whether in or about;
- Cooking, except at soda fountains, lunch counters, snack bars, and cafeteria serving counters;
- Freezers or meat coolers work;
- Loading or unloading goods on or off trucks, railcars or conveyors;
- Meat processing area work;
- Maintenance or repair of a building or its equipment;

- Operating, setting up, adjusting, cleaning, oiling, or repairing power-driven food slicers, grinders, choppers or cutters and bakery mixers;
- Outside window washing, or work standing on a window sill, ladder, scaffold or similar equipment;
- Warehouse work, except office and clerical work.

The jobs a 14- or 15-year-old **may do in the retail and service industries** include:

- Bagging and carrying out customer's orders;
- Cashiering, selling, modeling, art work, advertising, window trimming, or comparative shopping;
- Cleaning fruits and vegetables;
- Clean-up work and grounds maintenance - The young worker may use vacuums and floor waxers, but he or she cannot use power-driven mowers, cutters, and trimmers;
- Delivery work by foot, bicycle, or public transportation;
- Kitchen and other work in preparing and serving food and drinks, but not cooking or baking (see hazardous jobs);
- Office and clerical work;
- Pricing and tagging goods, assembling orders, packing, or shelving;
- Pumping gas, cleaning and polishing cars and trucks (but the young worker cannot repair cars, use garage lifting rack, or work in pits);
- Wrapping, weighing, pricing, stocking any goods as long as the young worker does not work where meat is being prepared and does not work in freezers or meat coolers.

Hazardous Occupations

18 is the minimum age for employment in non-agricultural occupations declared hazardous by the Secretary of Labor. The rules prohibiting working in hazardous occupations (HO) apply either on an industry basis, or on an occupational basis no matter what industry the job is in. Parents employing their own children are subject to these same rules. Some of these hazardous occupations have definitive exemptions. In addition, limited apprentice/student-learner exemptions apply to those occupations marked with an *.

These rules prohibit work in, or with the following:

HO #1	Manufacturing and storing of explosives.
HO #2	Driving a motor vehicle and being an outside helper on a motor vehicle.
HO #3	Coal mining.
HO #4	Logging and sawmilling.
*HO #5	Power-driven woodworking machines.
HO #6	Exposure to radioactive substances.
HO #7	Power-driven hoisting apparatus.
*HO #8	Power-driven metal-forming, punching, and shearing machines.
HO #9	Mining, other than coal mining.
*HO #10	Meat packing or processing (including the use of power-driven meat slicing machines).
HO #11	Power-driven bakery machines.
*HO #12	Power-driven paper-product machines.
HO #13	Manufacturing brick, tile, and related products.
*HO #14	Power-driven circular saws, band saws, and guillotine shears.
HO #15	Wrecking, demolition, and shipbreaking operations.
*HO #16	Roofing operations.
*HO #17	Excavation operations.

More detail about the above listings can be obtained by reviewing the child labor regulations.

Main Menu

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