

APPROVAL PAGE

Ideal State Level Marijuana Investigation & Eradication Program Design

For

Detecting & Dismantling Domestic Marijuana Cultivating Operations & Organizations

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For
Detecting/Dismantling Domestic Marijuana Cultivating Operations & Organizations

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Abstract

The domestic marijuana cultivation problem was discovered in the late 1970's and early 1980's. Since that time, federal, state, and local law enforcement officials have worked towards implementing specialized units to address this public safety issue and detect then dismantle the marijuana operations and arrest those who are responsible. Law enforcement agencies use a variety of program designs, each having their own strengths and weaknesses. This paper examines the marijuana cultivation problem and the programs that have been used to combat it.

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Section I: Introduction

Marijuana is the most commonly abused illicit drug in the United States and the only major drug of abuse that is cultivated within the borders of this country (DEA Briefs and Backgrounds, 2010). Domestic cannabis cultivation has increased sharply since 2000 as more drug trafficking organizations (DTO) have relocated cannabis cultivation operations to the United States (Department of Justice, 2007). As these complex marijuana cultivation operations increase and become more advanced, the need for a specially trained and cooperative effort between the federal, state, and local law enforcement agencies will be necessary to detect and dismantle these criminal organizations and their operations.

According to the Department of Justice (2010), Asian DTOs have expanded their influence nationally in recent years by trafficking high-potency marijuana and reduced the cultivation efforts in Canada by establishing marijuana grows in the United States in order to reduce the associated smuggling risks and cost. This is supported by the amounts of marijuana seized along the U.S. – Canada border. In 2009, the marijuana seized decreased from 10,447 kilograms in 2005 to 3,423 kilograms (Department of Justice, 2010).

The Cuban DTOs and criminal groups are expanding their influence in the southeast region, especially throughout Florida; by establishing and tending to indoor marijuana grow sites (Department of Justice, 2010). In 2008, the state of Florida took action to combat these domestic and foreign based criminal organizations. Florida lawmakers passed legislation to reduce the number of cultivated marijuana plants in an indoor grow house for a violator to be charged with trafficking, and strengthened the penalties for certain circumstances. The law went into effect July 1, 2008, and appears to be effective as eradication statistics reported for 2009 are showing a reduction from the eradication totals in 2008 (FL DME, 2009).

The criminal DTOs and organizations are constantly adapting and improving their efforts to produce, cultivate, and traffic their high quality marijuana (Department of Justice, 2010). Law enforcement must follow their lead and adapt and improve the investigation and eradication efforts to effectively dismantle and prosecute these dangerous operations and as a result increase the overall public safety.

Unfortunately, there are several areas that make it difficult for law enforcement to accurately determine the amount of marijuana plants being cultivated or the exact effect of enforcement and eradication efforts. The amount of both foreign and domestically cultivated marijuana available for distribution in the United States is unknown; an accurate estimate regarding the amount of marijuana available in the United States is therefore not feasible (Department of Justice, 2009). It is also unclear as to the extent that large scale DTO's,

including Asian, Caucasian, and Mexican groups play in the domestic marijuana production. According to the Department of Justice's "Domestic Cannabis Cultivation Assessment 2009", the reason that the extent of indoor cultivation in the United States is also largely unknown and is most likely underreported because of the challenges posed to law enforcement agencies in locating indoor grow sites.

Law enforcement will have to improve their efforts in the years to come in order to protect the public from the illegal activities that are associated with the cultivation of marijuana. The programs being utilized in Florida are a step in the right direction, but may not fit or work as well in all states. The Department of Justice predicts that in the near term, the threat posed by domestic cannabis cultivation in both indoor and outdoor grows will increase as the DTOs expand their operations throughout the country. Traffickers, primarily Mexican and Asian DTOs involved with cannabis cultivation and marijuana distribution will expand their operations to new areas, mainly to minimize detection and maximize their profits (Department of Justice, Domestic Cannabis Cultivation Assessment 2009). Law enforcement agencies and the marijuana enforcement community will benefit overall by examining what areas of these various investigation and eradication programs work, and what areas need improvement, and together an ideal model program recommendation can be developed and implemented.

Section II: Literature Review

Marijuana cultivation in the United States is a relatively new problem for law enforcement. Domestic marijuana production was not officially recognized as a problem until 1982 (Weisheit, 1992). The government discovered that there was 38 percent more domestic marijuana was seized in 1982 than was actually thought to exist (Warner, 1986). The majority of the authorities estimate that seizures represent only 10 to 20 percent of the marijuana available; therefore, the size of the discrepancy was astounding (Weisheit, p. 1). This finding led the government to believe that the extent of marijuana being grown was unknown or severely underestimated.

Domestic Marijuana Eradication and Suppression Program

The first organized efforts to eradicate domestic marijuana started in 1979 with the Drug Enforcement Administration's (DEA) Domestic Marijuana Eradication/Suppression Program (DCE/SP) (DEA, 1982). This program supported the state and local efforts to eradicate marijuana in California and Hawaii and was expanded in 1981 to include efforts in Oregon, Missouri, Kentucky, Georgia, and Florida (DEA, 1982). According to the DEA (1982), the strategy of the program was to establish a concept for the application of federal involvement domestically within a flexible framework and their resources would be applied to the local situation consistent with DEA's priorities and a policy of encouraging maximum state and local

participation and initiative. The goal of this strategy was both to deter commercial sinsemilla or high grade marijuana cultivation and to suppress the proliferation of that cultivation in areas which have not yet developed a large or sophisticated growing or marketing capability (DEA, 1982).

In 1982, government officials determined that greater amounts of marijuana were being produced and that an increasing amount was being grown using the “sinsemilla” technique. This technique consisted of removing the male marijuana plants from the female marijuana plants to cause the female plants to be more productive and produce higher quality marijuana. In order to combat this emerging trend, the DEA’s marijuana program was expanded to include 25 states (DEA, 1982).

A primary goal of the 1982 Domestic Marijuana Eradication/Suppression Program was to develop an intelligence data base concerning domestic marijuana cultivation (DEA, 1982). There was a great intelligence gap between the total amount of marijuana being seized and that of the actual amount of marijuana being produced (Weisheit, 1992). This data base is necessary for assessing the magnitude and threat of the domestic marijuana problem for use in program planning as well as for use in developing measures of effectiveness for program evaluation (DEA, 1992).

In order to develop and receive the information needed to ensure the success and effectiveness of the marijuana program, officials designed particular questions in order to evaluate the program and to obtain the needed intelligence information, eradication statistics and other information were requested from DEA field offices and state/local counterparts for each of the 50 states, regardless if the state was involved in the 1982 program (DEA, 1982). A questionnaire was developed to provide the information that would be needed to adequately address the issues that would allow the program to be successful, the questions are as follows:

1. Eradication Statistics (combined statistics for all agencies with the state)
 - A. Number of marijuana plots raided.
 - B. Number of plants seized.
 - C. Number of arrests.
 - D. Number of weapons seized.
2. Cultivation Techniques
 - A. Percentage of total (or seized) marijuana crop that was sinsemilla
 - B. Percentage of crop that was grown in greenhouses.
 - C. Other special or unusual plant types or cultivation techniques.
3. Intelligence Estimates
 - A. Percentage of total marijuana crop in state that was eradicated.
 - B. Rate of increase in amount of cultivation from previous year.
 - C. Factors indicating increased sophistication in cultivation from previous year.
 - D. Distribution system, location of consumer markets, etc. for marijuana grown in state.

- E. Group counties of state by subjective estimate of whether it is a:
 - 1. Major cultivation area.
 - 2. Moderate cultivation area.
 - 3. Counties not listed in 1 or 2 above will be considered as having little or no marijuana cultivation.

The DEA used this information to create a detailed intelligence report that discussed all aspects of the domestic marijuana situation (DEA, 1982).

In addition to the intelligence gathering, the DEA's program addressed training also. The DEA developed and conducted a Marijuana Aerial Observer School and supported similar training provided by state authorities in California, Mississippi, Arkansas, and Florida (DEA, 1982). The programs received considerable interest and more requests for the training were received than could be filled, this led to additional courses being scheduled for spring and early summer of 1983.

Aside from training law enforcement officers, the DEA also assisted with the training of federal, state, and local prosecutors. Initially, a two day seminar was hosted by the California Bureau of Narcotic Enforcement and DEA went on to host similar training courses across the country (DEA, 1982). These training sessions were helpful in removing the skepticism of some prosecutors concerning the ability of a trained observer to detect marijuana from the air, and legal issues concerning the evidence handling and collection, warrants, seizures, surveillances, and sentences were discussed by various prosecutors which also benefited the success of the program (DEA, 1982).

Along with training law enforcement and prosecutors, the DEA saw the need to educate the general public and law makers. In 1982, DEA developed materials that were made available to DEA offices and state and local authorities for use as public statements or talks to public officials and citizens' groups such as PTA's, fraternal orders, clubs, churches, etc. (DEA, 1982). This effort was deployed to educate and enlist the support of the general public for the eradication/suppression efforts across the country.

The DEA also explored different technological activities to support the success of the eradication/suppression program. During the 1982 program, DEA's Office of Science and Technology experimented with various types of sensing and photographic devices from aerial platforms to discover or detect marijuana fields. Although nothing attempted was effective or successful, they continued to experiment and try new methods (DEA, 1982). They also experimented with a means of destroying the marijuana plants. The more effective means of destruction was burning the plants once they were removed from the growing location, but this was also the most time and effort consuming means. The Office of Science and Technology tested the use of a mobile shredder to reduce the marijuana plant to an unrecoverable state in hopes of minimal effort and ecological disruption to the surrounding area (DEA, 1982). The use of herbicides was also experimented with by DEA and the Florida Department of Law Enforcement (FDLE). This led to the legal action against the agencies in federal and state courts,

but the attempts by NORML (National Organization for Reforming Marijuana Laws) were unsuccessful (DEA, 1982).

The DEA also tested ways to locate the marijuana plants and plots. Two projects were developed and tested in 1982. The first was a small radio receiver that used the LORAN C navigational aid system; this device was similar to the modern day Global Positioning System or GPS. The second project was a beacon that could survive being dropped from an aircraft on or near the marijuana field. The beacon would transmit a radio signal which could be detected or homed in on by aircraft (DEA, 1982).

The cultivation of marijuana continued to increase throughout the 1980s (Weisheit, 1992). Marijuana was being grown for recreational and commercial purposes. It was estimated that between 1 and 2 million people were growing marijuana for recreational needs and another 250,000 were growing marijuana commercially (Weisheit, 1992). This increased production led to the law enforcement community developing means to address this “growing” problem.

Participation in the DEA’s program continued to grow along with the increased cultivation. In 1983, the Domestic Marijuana Eradication/Suppression Program grew to a total of forty states participating and all fifty states reported some type of marijuana cultivation during the year (DEA, 1983). The domestic marijuana cultivation continued to gain attention and the 1984 National Strategy for Prevention of Drug Abuse and Drug Trafficking provided two strong

statements regarding the importance of combating the domestic cultivation: “An integral part of the National Strategy is the eradication of illicit drugs wherever cultivated or processed” and “Domestic cultivation of cannabis requires the attention of all levels of government; however, the nature of domestic production places it primarily within the jurisdiction and capabilities of state and local authorities. To assist there local efforts, the Federal Government provides advice, coordination and technical support” (DEA, 1984). As attention increased, the number of states participating did also, a total of 48 states participated in 1984 and the DEA also increased the total number of employees dedicated to the domestic marijuana program (DEA, 1984).

The success of program and the increased public awareness caused the marijuana growers to adapt their tactics to avoid detection. In 1984, indoor growing operations accounted for an increased number of plants eradication in 22 states (DEA, 1984). The type of operations ranged from the standard greenhouses, converted residences, barns, basements and attics were encountered by law enforcement. Although the northwestern United States reported the greatest number of indoor growing operations, the southern states from Virginia to Florida reported indoor cultivation being utilized in efforts to evade aerial detection (DEA, 1984). According to the DEA, a total of 649 greenhouses/indoor operations were reported dismantled or seized in 1984.

The training aspect of the program continued to be implemented and the new findings were integrated into the courses. In 1984, presentations on booby-traps and first aid received

greater emphasis due to the increased encounters of potentially lethal devices during late 1983 and early 1984 eradication efforts (DEA, 1984). The DEA also sponsored various training seminars and trained over 1000 federal, state, and local officers from 40 states (DEA, 1984). The use of reporting “hotlines” or toll-free telephone numbers were established or continued by several states to obtain information from the general public involving the sighting of illicit cultivation, and due to the success states were having from these specialized numbers; the program intended to establish dedicated phone numbers in all participating states (DEA, 1984).

In 1985, the DEA established three goals for the DCE/SP program: to suppress cultivation in established areas, to deter cultivation in potential growing areas, and to minimize product availability through crop destruction. Four specific program objectives were also established:

- 1) Encourage state and local agencies in each of the 50 states to recognize the extent of cannabis cultivation in their own areas and assign law enforcement resources accordingly.
- 2) Provide funding to states and local officers for an aggressive cannabis detection and eradication program.
- 3) Provide training to state and local officers in the various cannabis detection and eradication techniques.
- 4) Identify any new or unusual cannabis cultivation trends or techniques.

These goals and program objectives were established to help implement the program nationwide and to allow for program successes to be shared with all participating programs (DEA, 1985).

The relatively new program was having positive effects on the marijuana problem in the United States. Officials were finding a reduction in the amount of marijuana that was available to the users, and the law enforcement efforts played a large role in this (DEA, 1986). The DCE/SP program also produced new technologies and ideas to combat the cultivation of marijuana. Researchers developed a marijuana signature program and the goal was to determine the origin of the marijuana purchased on the street (DEA, 1986). This is just one example of the ideas that were developed from the efforts of law enforcement, some were more successful than others, but this area was definitely a work in progress.

By 1987, DEA was learning more about the marijuana cultivation issues throughout the United States. The DCE/SP found there was increases in the indoor cultivation of marijuana in 1985, 1986 and this continued throughout 1987 (DEA, 1987). There was also a 72% increase in the number of “sinsemilla” plants destroyed; this provided support that marijuana growers were continuously improving growing tactics and methods (DEA, 1987). The information network and intelligence gathering that was developed early in the program also improved the investigative application of the information. For the first time, law enforcement developed undisputed evidence of an organized group involved in a multi-state cannabis cultivation and distribution network (DEA, 1987).

The destruction of marijuana is very trying in several areas. One of the primary contributing factors to the destruction of marijuana plots is the amount of manpower required,

and has been year after year (DEA, 1987). In order to improve efforts, a portion of the DCE/SP program focuses on developing new technology to assist law enforcement with the eradication and investigation efforts and possibly more efficient. During 1987, several major research projects were undertaken and the principle focus was on crop detection, remote surveillance, and alternative methods of crop eradication (DEA, 1987). A portable cannabis pollen detector was tested and had positive results, although it would not be applicable to the sinsemilla crops, it could possibly be used to detect marijuana crops and could be used support probable cause in search warrants (DEA, 1987).

Investigators began discovering that many marijuana cultivators moved their operations indoors due to the intensive outdoor eradication programs. Trade publications such as High Times provided cultivators with information to successfully grow marijuana inside various structures with specialized equipment and tactics (DEA, 1987). The number of greenhouses (buildings where indoor marijuana growing operations were housed) increased along with the number of states seizing greenhouses in 1987 compared to 1986 (DEA, 1987).

State and local law enforcement along with the DEA program coordinators noticed the marijuana related publications also provided outdoor growing suggestions and advice to avoid detection. In the Fall 87 issue of Sinsemilla Tips, an article stated, "Growers were willing to harvest much lower yields by planting in the shade on east or west slopes and nowhere near water. Many growers had at least a little something to harvest this year because of this change in

cultivation tactics” (DEA, 1987). Camouflage techniques were also changing from year to year according to the DEA. These tactics ranged from the standard intercropping of cannabis plants among existing vegetation to such unique practices as hoisting potted plants up into the center of trees in what are termed as “tree plots” (DEA, 1987).

The indoor growing continued to increase in 1988. Compared to 1987 figures, the indoor cultivation of marijuana increased 4.03 percent (DEA, 1988). DEA conducted major research efforts in the areas of remote crop detection, eradication technologies, source of origin identification, and crop site estimation; specific accomplishments were made with the remote detection of outdoor marijuana patches using both visible light and infrared sensor systems (DEA, 1988). These projects led to establishing the preliminary work for detecting indoor growing operations.

There was one significant program that was developed in 1988 to assist with the emerging indoor marijuana operations. DEA implemented a Special Enforcement Operation (SEO) known as “Operation Green Merchant” to address covert indoor cannabis cultivation (DEA, 1989). This SEO focuses on the indoor growing industry ranging from the seed suppliers to equipment used by marijuana cultivators to set up the indoor operations. The program was successful from the start and was continued as a part of the DCE/SP program (DEA, 1989).

The DEA's Technology Development Unit directed its resources for the 1989 program year at detecting indoor and outdoor marijuana cultivation (DEA, 1989). Detection efforts for the outdoor cultivation placed a major emphasis on the assessment of low altitude aerial photography (DEA, 1989). The research addressed a variety of film types, imaging scales, filming techniques, and aerial platforms (helicopters, airplanes, etc.) (DEA, 1989). The indoor cultivation detection research focused on the use of portable thermal imaging video systems. The use of this "off-the-shelf" technology was the result of a year-long program which assessed the potential of thermal video to detect and record excessive heat levels of suspect structures (DEA, 1989). Indoor growing operations must use very powerful, often 1000 watt, grow lights to mimic the natural sunlight. The lighting systems cause a troublesome by-product, large amounts of heat. Thermal imagers are used from the public right-of-way to detect heat and view the walls, boarded up windows or doors, and roofs thermally (DEA, 1989). These thermal images can provide valuable information when used with other sources of information to establish probable cause for a search warrant.

The DCE/SP program also focused on the cultivation of the marijuana plant, not just the growers or the operations. Intelligence analysis and surveys were conducted to determine the patterns, changes, and trends in all phases of marijuana cultivation (DEA, 1989). The DEA used this information to determine the effectiveness of programs and to assist in the planning of future operations. The results only reinforced previous findings that the indoor growing operations

were increasing due to the effect outdoor eradication programs (DEA, 1989). This trend has been monitored for several years and the seizures of indoor operations have been increasing steadily due to DEA's heightened emphasis on indoor detection techniques, training and intelligence dissemination (DEA, 1989).

The Operation Green Merchant continued to be a great success for years after it was created. As of 1989, there were over 57,000 investigative leads developed and disseminated to various DEA field offices for follow-up investigations (DEA, 1990). The program impacted domestic marijuana indoor cultivation and supported the trend of indoor growing operations becoming more elaborate. High yielding, potent, hydroponic cultivations are very popular to marijuana cultivators because of the high profit margin (DEA, 1990). During 1990, sinsemilla bud (the most valuable part of the marijuana plant – the female plant flowers) sold for up to \$3,000 per pound (DEA, 1990). One hundred marijuana plants could produce a profit of over \$250,000 per harvest (DEA, 1990). The quality and potency of the marijuana is directly related to the price and value of the operation.

The success of the eradication programs had a profound effect on marijuana cultivators. The DEA's DCE/SP program drove growers to move from planting on their own land to growing marijuana on public lands such as national forests and national/state parks (DEA, 1991). The continued success of the aerial marijuana spotters also caused the growers to change tactics from

large plots to smaller marijuana patches and even from the outdoor environment all together (DEA, 1991). This is one answer to the increasing indoor marijuana growing operations. In 1991, the number of indoor operations seized increased dramatically to 70.6 percent (DEA, 1991). The number of domestic marijuana investigations also rose by 138 percent (DEA, 1991).

Training has proven to be an important factor in the DCE/SP program. In 1991, DEA sponsored 31 training programs and 1,505 law enforcement officers were trained in various trends and tactics used in marijuana investigations (DEA, 1991). The course curriculum consisted of objectives, functions, and problems associated with the detection and eradication of marijuana (DEA, 1991). Aerial spotting courses focused on actual flying time to spot marijuana patches and safety, observations, and aerial photography and detection techniques (DEA, 1991). There were also instruction in the area of booby-traps and other lethal devices that were commonly found during eradication efforts (DEA, 1991). In order to address the indoor growing problem that faced law enforcement, two new training courses were developed: Indoor Cannabis and Thermal Imagery Investigations.

The shift in training attention from outdoor efforts only to a combination of outdoor and indoor courses was well received. The indoor training courses along with the SEO, known as “Operation Green Merchant”, proved to be a very successful pair. The Green Merchant program and DCE/SP statistics for three years (1989, 1990, & 1991) show that indoor marijuana seizures

increased at a rate of 20% per year (DEA, 1991). During 1991, approximately 800 federal, state, and local officers were trained in the Operation Green Merchant objectives, concepts, and investigative techniques (DEA, 1991). Since the implementation of the Green Merchant program in 1988, DEA investigations initiated the following: 1,262 marijuana growers arrested, 977 indoor marijuana growing operations seized; and \$17.5 million of drug assets seized (DEA, 1991).

Current Trends

- Organizations

The marijuana industry has evolved from a legal, government-subsidized enterprise into a highly profitable illicit business (Hafley and Tewksbury, 1995). Organized and informal networks of marijuana cultivators have developed both internationally and in localized regions of the country due to the increasing marijuana market (Hafley and Tewksbury, 1995). Caucasian drug trafficking organizations around the United States capitalized on the marijuana trade throughout the 1980's and 1990's, especially in areas that were already being used for farming and growing of legal common market crops (Weisheit, 1990). Domestic marijuana cultivation has increased sharply since 2000 as more DTO's relocate marijuana growing operations from Mexico and Canada to the United States (DOJ NDIC, 2007).

Mexican DTOs are well established in the United States. Domestic outdoor marijuana cultivation operations ran by Mexican DTOs are most commonly found in the remote and isolated areas of the federal public lands such as national parks and national forests (DOJ NDIC, 2007). They are most prevalent in California, Oregon, and Washington (DOJ NDIC, 2007). The success of the outdoor eradication programs has caused the Mexican DTOs to move operations eastward. These large organized operations have been found in Georgia, Kentucky, North Carolina, Tennessee, and West Virginia (DOJ NDIC, 2007 and 2009).

As discussed in the review of the DCE/SP program, another by-product of the success of the outdoor programs are the increasing indoor growing operations. The criminal groups not only attempt to avoid the risk of detection, but they also seek to produce higher potency marijuana to increase the profits (DOJ NDIC, 2007). Caucasian criminal DTOs are the predominant indoor producer of marijuana across the country, especially in the Appalachian Region (DOJ NDIC, 2007). Asian DTOs have been well established in Canada, and are also increasing production within the United States. These groups are a particular concern because many are well-organized; and they are known to produce and distribute high potency marijuana (DOJ NDIC, 2007). Asian organizations, primarily ethnic Vietnamese and Chinese DTOs, are operating predominantly in the Pacific Northwest and throughout California; although more indoor growing operations connected to similar Canadian based Asian organizations are appearing the New England region and other northeastern states (DOJ NDIC, 2007). Many of

the tactics and operational details are similar to those indoor growing operations discovered and dismantled in eastern Canada by law enforcement officials (DOJ NDIC, 2007).

The southeast is not immune from these criminal DTOs looking to establish operations for the production of high grade marijuana. Florida officials have discovered complex indoor growing operations in numerous counties throughout the state (DOJ NDIC, 2007). The Florida Department of Law Enforcement (FDLE) reports that the number of indoor operations operated by Cuban organizations in South Florida has increased sharply and is the leading cause for the increase in indoor growing operations seized between 2001 and 2006 (DOJ NDIC, 2007).

Florida is not the only home for Cuban DTOs and their operations, since 2001, these groups have expanded their efforts northward into Georgia and North Carolina (DOJ NDIC, 2009).

- *Growing Trends*

There are many goals to achieve when deciding on the marijuana growing tactics to use in a cultivation operation. The growing location will always require security and remaining unknown to law enforcement, the higher the potency – the higher amount of profit, soil based growing operations require more effort – but hydroponic growing systems are more expensive; these are only a few of the things being considered when a marijuana grower is planning to initiate the illegal growing venture (Cervantes, 2006). The average marijuana potency has steadily increased over the past twenty years to the highest recorded level in 2008 which was an

average THC (delta-9-tetrahydrocannabinol) percentage of 10.14 (DOJ NDIC, 2009). This almost continuous yearly increase of THC percentages can be partially connected to the improvements in outdoor and indoor cultivation methods.

Marijuana growers must recreate the natural outdoor environment when cultivating marijuana indoors. The grower will use particular lighting systems to accomplish providing artificial sunlight to the plants. It is common for the grower to use fluorescent, metal halide (MH), and high pressure sodium (HPS) lighting systems (Rosenthal, 2010). These lights must be used in specific methods in order to trick the marijuana plant and cause it to believe it is growing naturally outdoors. The MH and HPS lighting systems range from 400 watts up to 1000 watts typically and these lights will also require an increase in the electrical usage of the building or residence where the marijuana grow is located (Cervantes, 2006). Growers will often circumvent the electrical meters and steal power to avoid any suspicion from the utility company or law enforcement (Ritter, 2007).

LEDs or light emitting diodes are relatively new to the growing community. As the technology improves the LEDs will become more valuable to a grower, and these systems will create a new problem for law enforcement. LEDs use a small amount of electricity and there will be less need to ensure heat from the MH and HPS lighting systems isn't as obvious when conducting surveillance with a thermal imager (Escondido, 2008 and Rosenthal, 2010). Once

the lighting systems are in place, and the growing operation is active, the lighting cycles can be an indicator of the marijuana cultivation style. Marijuana plants must be led to believe they are outside and Mother Nature is all around. Therefore, lights must be used to re-create the color spectrums and hours of light/hours of darkness. For example, marijuana plants in the seedling stage may be exposed to fluorescent lighting for 18 to 24 hours a day, plants in the vegetation stage need to be exposed to MH lighting for 16-18 hours a day, and when marijuana plants are ready for the flowering stage, they need HPS lighting for 12 hours a day (Cervantes 2006 and Rosenthal, 2010).

Aside from the lighting system there are several things that can be noticeable to law enforcement conducting marijuana cultivation investigations. Growing handbooks often dedicate sections to security of growing operations in hopes of avoiding being caught by law enforcement and prosecution. Experienced growers suggest being quite about the operation and keep the list of people aware of the activities very short, in order to keep anyone becoming an informant to law enforcement (Rosenthal, 2010). The cultivator is also warned to avoid accidents such as being caught with marijuana, risk of fire in a growing location that may lead to the fire department (and law enforcement) to respond to the growing operation, and leaving growing supplies visible so that law enforcement may take notice (Rosenthal, 2010). Experienced growers also warn about the legalities of law enforcement conducting trash searches, recording of light or heat leaking out of the growing operation, and the odors of

marijuana growing that law enforcement or nosey neighbors may take notice to, will all lead to the grower being caught (Rosenthal, 2010).

All of these areas discussed are topics that law enforcement are trained to recognize when conducting marijuana cultivation investigations. The increased training and experience of an investigator in the areas of marijuana cultivation will only improve law enforcement's goal of successfully detecting and dismantling these illegal growing operations.

- *Safety Issues*

Outdoor and indoor marijuana growing operations create a special and dangerous safety issues for the law enforcement officers investigating cultivators and their operations. The dangers may be immediate and others may have a lasting effect and not cause harm until years later. It is expected that the grower himself would be a danger due to the risk of being armed and a desire of not going to jail. This would be regardless of either an outdoor or indoor operation. Removing the grower from the list of dangers, each growing situation has their own set of possible risks or safety issues.

Outdoor growing operations are much more exposed to law enforcement and innocent citizens than their indoor counterparts. Growers often expect a confrontation with police, but occasionally an unsuspecting hiker may stumble into a growing operation and the grower must

contend with this breach of security. California's Campaign Against Marijuana Planting (CAMP) Program reported at least 12 murders had been linked to marijuana cultivation during 1980, 1981, and 1982 (DEA, 1982).

Over the years law enforcement officials have also encountered passive booby-trap type devices when approaching outdoor growing operations. These devices range in sophistication and ingenuity exhibited by marijuana cultivators; some are simple. Innocuous, monofilament wires for alarms, others are home-made booby-trap devices (DEA, 1982). The traps encountered include guard dogs, pipe bombs, punji boards (boards with nails or stakes sticking upward) placed in trails or small pits intended to be stepped on, animal traps, barbed wire, electric fences, fish hooks strung up intended to catch an unwanted guest in the head or body, and dynamite or similar explosives, just to name a few of the most common things discovered (DEA, 1982; 1986; 1987; 1990, GTFME 2008; 2009; 2011, and Kenning, 2007).

Indoor marijuana growing operations are not immune to similar security standards. Aside from the booby traps, indoor growing locations have many additional issues to consider. Indoor growing operations are a self-contained environment created to provide the best possible conditions for cultivating marijuana. A grower will need large amounts of electricity, timers for the lighting systems, high intensity lights, humidifiers, fans, and large amounts of water (Rosenthal, 2010). The grower will often act as the electrician and wire the room or building especially for the operation, this can become a problem when the large amounts of water are

added. It is not uncommon for marijuana cultivation to be the cause of numerous structural fires (DEA, 2011). Marijuana grows can leave a lasting effect on houses. A couple in Altadena, CA bought their first home, not long after moving in the smell of new paint was overtaken with the odor of stachybotrys mold growing throughout the house and cost over \$42,000 in repairs, only to have the house damaged again from fire due to the electrical fire (DEA, 2011). Carbon dioxide is also used to enhance the growing atmosphere; this can cause a growing room to contain low levels of oxygen (Rosenthal, 2010 and CVC HIDTA, 2007). These molds and oxygen deficient environments are also a danger to law enforcement and have required many agencies to treat a growing operation similar to clan labs in order to protect the health of the law enforcement officers dismantling the growing operation (CVC HIDTA, 2007).

Section III: Program Studies / Samples

Florida's Domestic Marijuana Eradication (DME) Program

As did several states in the country, Florida began experiencing an emerging marijuana cultivating problem in the early 1980's. In 1981, the Florida Department of Law Enforcement (FDLE) received information that the cultivation of marijuana was a viable criminal enterprise in Florida (FL DME Overview, 2010). This led to the FDLE and DEA to organize the first marijuana eradication effort in Florida and 48,206 plants were seized along with 61 arrests (FL DME Overview, 2010). The FDLE continued to oversee and organize the DME program for the

State of Florida and coordinate with the federal, state, and local law enforcement agencies involved with the marijuana problem.

Due to the success of the initial program Florida law enforcement quickly learned through intelligence and amounts of domestically grown marijuana on the streets local marijuana cultivators were producing high quality marijuana (FL DME Overview, 2010). These findings applied to every region in the state. Florida has become one of the nation's leading producers of "homegrown" marijuana according to the law enforcement community and also supported by a publication of the illicit drug cultivators, the *High Times* magazine (FL DME, 2000).

The Florida DME program has continuously evaluated the law enforcement efforts to adapt to changing trends in the marijuana cultivation throughout the state. The program involves all of Florida's law enforcement community by employing aggressive training techniques in the specialized areas of aerial detection and indoor growing operation investigations (FL DME, 2000). In 2000, 61 of Florida's 67 counties were home to marijuana cultivation operations (FL DME, 2000). Law enforcement seized 611 grow sites and arrested 406 marijuana growers, this also led to the eradication of 39,219 plants (FL DME, 2000).

The DME also discovered indoor growing operations were active in over half of the counties in Florida. In 2000, indoor marijuana cultivation operations were seized in 39 counties, a total of 1,873 illicit in-home marijuana activities since 1989 (FL DME, 2000). The success of

targeting these operations are a direct result of thorough investigations along with multiagency cooperation and the Florida DME's progressive training program targeting indoor growing operations (FL DME, 2000). By combining investigative expertise, resources, and manpower, these multi-agency task forces were able to efficiently concentrate on areas of high activity without draining the resources of any one department (FL DME, 2000).

Training of local agencies plays an important part in the enforcement strategy. In 2000, an emphasis was placed on the use of thermal imagery technology to detect and apprehend the sophisticated indoor cultivator (FL DME, 2000). From the beginning of the DME program, Florida's sheriff's departments received a majority of the training due to the outdoor growing tactics in the rural areas of the state, but as the indoor growing operations increased so did the number of municipal police department participating in the DME training programs (FL DME, 2000). Their involvement resulted in detection of a greater number of indoor growing operations along with increased numbers of arrests across the state (FL DME, 2000).

The cultivators' trends are always adapting to the efforts of law enforcement. The success of the outdoor eradication efforts pressured the marijuana growers to move their operations inside in many areas of the state. Growers prefer to insulate themselves from prosecution and civil forfeiture by using lands they do not own, such as public woodland areas or

timberland (FL DME, 2000). This requires law enforcement to conduct thorough investigations to connect the growing operation to the cultivator.

Criminal DTO's have capitalized on the accommodating climates and environments across the country by establishing large outdoor growing operations on many public and even some private lands. Florida officials experienced their incident with a Mexican drug cartel's growing operation in Hardee County. A total of 18,248 marijuana plants were seized and the growing operation was being guarded by armed Mexican Nationals (FL DME, 2000). Aside from posing danger to law enforcement officials conducting marijuana investigations or eradication operations, it also poses a threat to the innocent citizens just trying to enjoy the natural resources and public park lands.

The Florida DME program also enlisted the cooperation of the general public. Support from an informed public in conjunction with the law enforcement efforts has been essential to the success of the program (FL DME, 2001). To strengthen and ensure this success, FDLE and the DME program provides ongoing public awareness effort through the use of the Internet, educational appearances, publications, and training provided to the law enforcement community (FL DME, 2001).

The DME program adapted their operations to better compliment the changing trends due to the marijuana cultivators' change in tactics. In 2005, the FDLE focused on administrating the

Indoor DME program and the Florida Office of Agricultural Law Enforcement (OALE) focused administrating the Outdoor DME program (FL DME, 2005). The added attention to the outdoor cultivation was needed due to the 484% increase of outdoor marijuana plants eradicated in 2005 from the number of plants eradicated in 2004 (FL DME, 2005).

The Florida DME program is unlike many programs in the country. The DME program is voluntary and offered to local agencies through the OALE (Outdoor Program) or the FDLE (Indoor Program) (FL DME Outdoor, 2006). Each year, the DEA provides funding to the OALE and the FDLE, these funds are then dispersed to local law enforcement agencies for training and reimbursement for outdoor or indoor growing operations/investigations (FL DME Outdoor, 2006). Aside from the training courses provided as discussed earlier, the FL DME program also provides seven orientation meetings to Florida law enforcement officers who are involved in outdoor eradication efforts or indoor growing investigations (FL DME Indoor, 2006).

The DME programs proved to be successful once again with the investigation of a highly sophisticated indoor grow operation dismantled in 2006 (FL DME Indoor, 2006). This investigation was a joint operation conducted by the Drug Enforcement Administration, Internal Revenue Service, Port St. Lucie Police Department, St. Lucie Sheriff's Office, Martin County Sheriff's Office, and the United States Attorney's Office. As a result of the investigation, 50 homes in St. Lucie County were identified as marijuana grow houses, resulting in the seizure of

approximately 4,000 pounds of marijuana, \$167,000 in cash, and a large cache of sophisticated indoor hydroponics grow equipment (FL DME Indoor, 2006). This five month investigation led to the federal indictment of 35 defendants in the Port St. Lucie area for drug trafficking/production offenses (FL DME Indoor, 2006).

In 2008, the Florida Office of Agriculture Law Enforcement (AgLaw) began overseeing and administering both the outdoor and indoor programs (FL DME, 2008). This led to a more unified marijuana program rather than the two separate divisions of the DME. Also in 2008, the Florida Legislature passed laws to increase the prosecution of marijuana cultivators and it appears that the laws are being effective; state officials have seen a decrease in marijuana plants eradicated during 2008 and 2009 (FL DME, 2010).

Since the inception in 1981, the Florida DME Program has set national standards and served as a role model for other states (FL DME, 2010). In addition to being recognized for its progressive program, the DME is also noted for its specialized law enforcement training in the areas of aerial detection and indoor growing investigations (FL DME, 2010). The partnership between the Florida DME and the DEA's DCE/SP programs has led to the detection of over 30,891 illegal grow sites; eradication of over 2.54 million marijuana plants valued at approximately \$4 billion; and the arrest of over 15,000 cultivators (FL DME, 2010). This is also

evidence of what can be accomplished with the cooperative efforts and dedication of the federal, state, and local law enforcement agencies that participate in the program each year.

Kentucky's Governor's Marijuana Strike Force / Cannabis Suppression Branch

Kentucky is one of the top marijuana producing states in the country. In order to combat this problem, the Commonwealth of Kentucky established the Governor's Marijuana Strike Force. The strike force is headed by the Kentucky State Police – Cannabis Suppression Branch which consists of a lieutenant, sergeant, and five detectives that concentrate on marijuana investigations year around (Governor's Strike Force, 2011). During the summer months, there are over 100 state police troopers, Kentucky National Guard members, DEA agents, and members from the U.S Forest Service and U.S. Marshals Service that join the strike force to eradicate marijuana throughout eastern Kentucky (Kenning, 2007 and Governor's Strike Force, 2011).

Eastern Kentucky is steeped in a tradition of criminal enterprise. Many of the small towns throughout the area is a history of moonshine production and the age old "cat and mouse" relationship between the federal/state law enforcement and the locals who depend on the trafficking of moonshine and marijuana to support their families or just to make a lucrative profit (Kenning, 2007). These same rural towns also share the characteristics of high rates of

unemployment and poverty, not to mention public corruption is also found in some cases according to federal drug officials (Kenning, 2007). This social environment creates the problem that the Governor's Strike Force tries to answer and eliminate.

Since the program began, it has found success in the effort and continues to adapt with the trends of the cultivators. Kentucky, along with Tennessee and West Virginia, has counties within the Appalachian Mountains that make up the AHIDTA, or Appalachian High Intensity Drug Trafficking Area. These sixty-eight counties contain less than one percent of the country's population, but this region contained roughly ten percent of the marijuana eradicated nationwide in 2006 (Kenning, 2007). The Governor's Strike Force has gained national recognition for their efforts and effectiveness. In April 2010, the Kentucky Eradication Initiative received a national "Outstanding Task Force" award from the national HIDTA organization which ranked them as number one of over six hundred other nationwide task forces in the marijuana eradication community (Governor's Strike Force, 2011). Not only were 330,699 marijuana plants eradicated in 2009, but there were 483 cultivators arrested state-wide and \$966,078 in forfeitable assets seized from growers and those involved in the distribution or other areas of the marijuana organizations (Governor's Strike Force, 2011).

Tennessee's Governor's Task Force on Marijuana Eradication (GTFME)

The Governor's Task Force on Marijuana Eradication is the only state-wide coordinated effort to investigate and eradicate marijuana cultivation throughout Tennessee. The GTFME was created in 1983 by Executive Order No. 51, issued by Governor Lamar Alexander (Exec. Order No. 51, 1983). Governor Alexander made note that the Alcoholic Beverage Commission, the Department of Safety, and the Tennessee Bureau of Investigation, along with several local law enforcement agencies had been actively involved with the eradication of domestically cultivated marijuana and the agencies had been successful in destroying millions of dollars of domestically grown marijuana in 1981 and 1982 (Exec. Order No. 51, 1983). Law enforcement officials also made observations that the number of marijuana patches were increasing each year.

Governor Alexander decided that the interests of the previously mentioned state agencies and departments along with the interests of the citizens would be furthered and well-served by the establishment of a coordinated, multi-agency program to eradicate domestically cultivated marijuana and to arrest and prosecute individuals involved in the marijuana operations (Exec. Order No. 51, 1983). In order to accomplish this goal from the Governor's office, the GTFME Operating Committee established the following mission statement:

Through the cooperative utilization of the "task force" concept the Governor's Task Force on Marijuana Eradication mission is to seek out and destroy all marijuana which is domestically of otherwise growing in Tennessee; to effect arrests and prosecute all individuals identified as growers, distributors, or sellers of marijuana in the State of Tennessee and to seize and forfeit all assets that can be connected to illegal activity; to develop and maintain an intelligence network for present and future operations which would provide reliable information regarding growth, distribution, and/or sales activities;

to develop and maintain, for present and future purposes, an accurate and effective system of accounting and reporting procedures inclusive of the total scope of the task force operations; to develop the most effective and economical methods and procedures for the eradication of marijuana which can be used as a standard of operation in the future with the least disruption of other activities and services being performed by members of this task force. Members of this task force shall encourage local law enforcement participation in its operations (GTFME Standard Operating Procedures, 2011).

The GTFME focused efforts are applied to the outdoor eradication season that runs typically between May and October each year. There are other phases that take place year around such as planning, training, indoor growing investigations, and case presentments/prosecutions (GTFME, 2010).

The organization of the GTFME is unique compared to many of the task force style operations. The command structure was established by Executive Order No. 51. Upon establishing the agencies to be a part of the task force, Governor Alexander continued to implement an Executive Operating Committee that is comprised of the chief executive officer of each agency. These executive officers were the Director of the Tennessee Bureau of Investigation (TBI), Executive Director of the Tennessee Alcoholic Beverage Commission (TABC), the Commissioner of Department of Safety (DOS), the Adjutant General of the Tennessee National Guard (TNG), and the Executive Director of the Tennessee Wildlife Resources Agency (TWRA) (Exec. Order No. 51, 1983). The Executive Operating Committee members designate their representatives to serve on the Operating Committee to oversee the day to day operations and program planning (GTFME SOP, 2011). The Operating Committee

consists of a Special Agent in Charge from the TBI, the Chief Law Enforcement Officer from the TABC, the Lieutenant of the Tennessee Highway Patrol - Special Operations Unit, and the Director of the TNG Counterdrug Task Force Division (GTFME SOP, 2011).

The GTFME is divided into three teams, one for each grand division of the state: East, Middle, and West. Each team is led by a Team Leader, which is appointed by the Operating Committee. The Team Leader is responsible for coordinating and overseeing the activities of the team on a daily basis (GTFME SOP, 2011). Reporting activities, seizures, and assigning investigative cases are all duties of the Team Leaders.

The GTFME is the DEA's DCE/SP program for the state of Tennessee. Team leaders are required to submit a manpower report and a plot location report each day (GTFME SOP, 2011). These reports allow for reporting the personnel and hours worked, and plot location forms allow for the marijuana patches eradicated to be documented with information such as Latitude/Longitude, date, time, number of plants, types of plants, arrests, seizures, and other pertinent details. This information is compiled weekly and submitted to the DEA on a monthly basis for DCE/SP program statistics. Local law enforcement agencies are not required to report marijuana seized to the GTFME, and it is not uncommon for growing operations to go unreported or counted for in the annual figures. A seized marijuana growing operation in Hardin County, Tennessee is an example of this oversight or intelligence gap in the eradicated or seized marijuana plants statistics. According to a news report from March 1, 2008, TBI dismantled an

underground indoor growing operation and more than one thousand plants were seized from the location (News Channel 9, 2008). The GTFME 2008 Annual Report shows a total of 513 marijuana plants eradicated (GTFME, 2008).

Tennessee is also falling victim to criminal organizations just as other states across the country. In September 2007, a large marijuana growing operation was discovered in Greene County, Tennessee (Greeneville Sun, 2007). One Hispanic male was arrested and three others evaded custody when law enforcement officials located the cultivation site and approximately 12,000 marijuana plants were seized (Greeneville Sun, 2007). The suspects were living within the growing location and tending the plants. In 2008, one of the largest outdoor growing operations seized in the United States was discovered in the Cherokee National Forest near Interstate 40 in Cocke County, Tennessee (DOJ NDIC, 2009). The GTFME eradicated approximately 357,500 marijuana plants from the growing operation that appeared to be tended by Hispanic individuals possibly working under the direction of an organized drug trafficking cartel based in Mexico (AHIDTA DMA, 2009). In 2009, similar style growing operations were seized in Campbell County (151,250 marijuana plants) that was on a privately owned timber property and the other in Bledsoe County (26,000 marijuana plants) that was located in Falls Creek Falls State Park (GTFME, 2009).

Section IV: Design / Model Programs

The federal, state, and local marijuana eradication/investigation programs vary across the country. The program design is determined by its goal as well as available funding. Existing program models are a state led unit with federal funding and local agency participation, a federal led effort with various state and local agencies participating, and in a few cases a local agency program is supported with state or federal funding such as the DCE/SP program.

Kentucky is one of the few states with a full time marijuana program. Many states only focus effort during the growing season that runs from mid-May through late September or early May (GTFME, 2011 and California DOJ, 2011). Tennessee's GTFME and California's CAMP programs are state led programs who received federal funding, and coordinate operations with various federal, state, and local agencies. Both programs areas of priorities fall during the growing season, but parts of the organizations may continue investigations and activities throughout the year (GTFME, 2011 and California DOJ, 2011).

CAMP is the largest law enforcement task force in the United States with over 110 agencies participating (California DOJ, 2011). Their primary objectives are reducing the supply of marijuana by eradicating the large marijuana crop sites; increasing public and environmental safety by removing marijuana growers from public and private lands; investigating indoor growing operations; deterring potential growers; and promoting public information and education on marijuana (California DOJ 2011). In California, many of the sheriff's and local

police departments have air assets such as planes and helicopters they provide for the CAMP program along with state and federal assets or at times contracted private aircraft. CAMP is managed by the California Department of Justice's Bureau of Narcotics Enforcement, and CAMP agents are broken into five teams covering northern, central, and southern California regions (DOJ NDIC, 2007).

Numerous states have a similar model but operate on a much smaller scale. New Jersey State Police's Domestic Cannabis Eradication Squad is lead agency in the state for the DCE/SP program (NJSP, 2011). The Marijuana Eradication Squad conducts their own indoor and outdoor cultivation investigations, in addition to offering assistance to other law enforcement agencies with these types of special investigations (NJSP, 2011). The unit also conducts a three day Marijuana Investigation and Eradication School annually and approximately one hundred law enforcement officers from across New Jersey participate in the training (NJSP, 2011).

Wisconsin's DCE/SP funding recipient is the Cannabis Enforcement and Suppression Effort (CEASE) program. The CEASE program's primary goal is to augment local law enforcement efforts in locating indoor and outdoor marijuana grow operations and arrest those responsible (Columbia County Sheriff's Office, 2011). The CEASE program also gathers statewide statistics, intelligence data, and distributes funds to be used for the investigation and eradication of marijuana growing operations (Columbia County Sheriff's Office, 2011).

The Kansas Bureau of Investigation and the Kansas Highway Patrol partner together to assist the DEA and the DCE/SP program throughout the state of Kansas (KBI, 2011). These agencies work together to assist local law enforcement in the identification and eradication of marijuana growing operations across the state, and each county reports statistical information for eradicated marijuana each month to KBI (KBI, 2011). The reporting forms are also located on the agency website, which allows for local departments to easily access needed materials.

The Michigan State Police and their HEMP (Help Eliminate Marijuana Planting) Unit is responsible for administering the DCE/SP program in Michigan (Michigan, 2011). Operation HEMP utilizes cooperation between state, country, and local law enforcement agencies and the program's objectives are to:

- arrest and prosecute those who cultivate and traffic in marijuana
- seize and forfeit the assets and proceeds from the cultivation and trafficking of marijuana
- reduce the availability of marijuana in Michigan
- reduce criminal activity incidental to marijuana cultivation
- promote the safe use of public and private lands (Michigan, 2011).

The program also solicits the help of citizens by utilizing a toll-free tip line as many other states.

The DCE/SP program in the state of Texas is the Department of Public Safety (DPS)'s Domestic Marijuana Eradication (DME) program. The mission of the DME is to coordinate and support all law enforcement efforts in the state of Texas related to the eradication of domestically grown marijuana (TX DPS, 2011). The DME program provides training and equipment to law

enforcement officers across the state in order to maximize their efforts related to the investigation and eradication of marijuana produced domestically (TX DPS, 2011).

Section V: Recommendations

This paper has provided a critical look at several programs from across the county that varied in their emphasis or approach such as focus on arrest, training tools, and target area. Marijuana investigation/eradication programs should best be designed and implemented specifically for the area or particular marijuana problems within each respective state.

It is safe to assume that any environment that is suitable to the outdoor cultivation of marijuana is also susceptible to the indoor cultivation operations. Anywhere in the United States that a cultivator can get electricity, water, supplies, and avoid law enforcement intervention; he or she can grow marijuana indoors regardless of the outdoor weather and environment. This all depends on the motivation or desire of the marijuana cultivator. In theory, a grower could use large generators or solar panel systems to provide electricity in areas they wouldn't otherwise have it, and in the cases of outdoor cultivation sites, Hispanic DTOs have ran water lines for miles and used gravity fed pressure to provide water to areas that are usually dry. State and local

law enforcement should consider and be aware of when assessing the drug threats in the respective communities.

A state level marijuana investigation/eradication unit needs to address several areas. A priority should be accurate statistics and intelligence gathering. Currently in Tennessee the statistics do not indicate an emerging indoor growing operation problem, but it could be due to a gap in the intelligence obtained and seizure statistics being unreported, for example, the underground growing operation of over 1000 plants seized by TBI, is an example of this inaccurate reporting of the number of marijuana plants or growing operations seized. This lack of accurate reporting has occurred on several occasions, in 2006, the TBI seized an indoor grow in Franklin County with 111 plants, but this was not reported to the DCE/SP program (DOJ NDIC, 2007).

Intelligence gathering is of major importance to dismantling marijuana cultivating operations. It is all too possible for a criminal network of indoor operations to be prosecuted as individual criminal operations, while actually being only the small part of a much larger organization or even a DTO. The National Drug Intelligence Center reports there are three main intelligence gaps when it comes to the marijuana problem: 1) there are no reliable estimates available regarding the amount of domestically cultivated or produced marijuana; 2) the amount of cannabis cultivated and marijuana produced in the United States by large-scale DTOs,

including Asian, Caucasian, Cuban, and Mexican groups, is unknown; and 3) the extent of indoor cannabis cultivation in the United States is largely unknown and likely underreported because of the challenges posed to law enforcement entities in locating indoor growing locations (DOJ NDIC, 2009).

Trained and knowledgeable investigators are essential in the success of a specialized marijuana investigation/eradication unit. There are many aspects to a marijuana investigation. The investigator must be informed on areas of search and seizure, laws pertaining to marijuana, search warrant procedures or requirements, growing trends, marijuana growing equipment, and tactics being used by experienced marijuana cultivators – even those tactics that may change almost constantly. The unit is also well served to have personnel that can present information to the public or other law enforcement outlets in presentations or briefings to ensure an accurate description of the current marijuana production situation. Law enforcement must do a better job in explaining the dangers of marijuana and the growing operations, otherwise the “medical marijuana” campaign will continue to grow and the law enforcement community will only have additional problems to solve for the safety of the citizens they protect.

Training needs to provide the investigators a full understanding of the marijuana cultivation process. In order to effectively investigate the marijuana operation, an investigator should understand how marijuana grows in nature and the outdoor environment. It is up to the

marijuana cultivator to recreate this scenario to establish the growing environment for the indoor operation. An investigator will be able apply the needs of the marijuana plant to explain the indoor operation to a jury or judge when prosecuting the criminal cases.

Marijuana growing operations also create a safety issue for the investigating law enforcement officials and at times the general public. The marijuana cultivator's use of booby traps and weapons to protect or defend the growing operation creates a dangerous situation for anyone one who may stumble into the operation or be tasked with raiding and dismantling it. Investigators should have a basic training in detecting booby traps and possibly dismantling basic traps, but know when the traps are combined with explosives, trained bomb technicians should be called to assist.

The indoor growing operations can be especially danger to the health of law enforcement investigators and first responders. Growers use carbon dioxide to supplement the air in a growing room. If the room is a confined and fairly sealed off area in hopes to keep pests and unwanted temperatures from the growing location, the CO² can build up and cause the room to be oxygen deficient (CHIC, 2010). There have also been cases of carbon monoxide poisoning due to growers mistaking carbon dioxide and carbon monoxide (CHIC, 2010). Indoor growing rooms are also susceptible to molds and mildew. This can cause an investigator health problems ranging from minor sinus infections to major dangers such as cancer (CHIC, 2010). In order to

protect themselves, many departments are treating the initial entry to an indoor growing operation similar to that of a clandestine meth lab, and upon ventilating the operation, stepping protection down to air purifying respirators instead of the self-contained breathing apparatus.

Electricity poses a danger in all indoor growing operations. It is not a common practice for marijuana cultivators to use certified or licensed electricians to wire up their growing location due to the risk of being reported to law enforcement. This leads to the grower often doing most of their own wiring. It is also common for growers to steal or divert electricity in order to save money or to keep the power company from noticing the high usage amounts. Growing operations use a great amount of lighting systems that use a lot of electrical wattage, combine this with the often moist environment and standing water throughout the operation, the risk of electrocution is high. To avoid this danger, investigators must be trained in recognizing power diversion and have utility company officials assist with the dismantling process. Investigators also need to be providing safety equipment such as special gloves, head gear, and tools to avoid electrical injuries.

Technology is always improving and new tactics can be used to detect and investigation marijuana growing operations. Specialized marijuana investigation/eradication need to keep informed of the new options and maintains training and certification on these types of issues. The use of thermal imaging, all-terrain vehicles, covert surveillance tactics, are just a few of the

equipment needs and job skills required to address present day outdoor and indoor growing operations. Certification and maintaining certifications in the area of thermal imaging, along with other technological tools are required so that law enforcement remains competitive. Marijuana growers are constantly improving their means and ways of producing marijuana, and law enforcement should be no different.

Overall the specialized area of marijuana cultivation operation investigations can have many complex parts. Once members of the unit are trained with the basic essentials, the investigators will be better equipped and the organization will reduce the risk or liability by supplying the needs required to safely and effectively investigate marijuana cultivation operations. The organization should also continue to train and require refresher courses along with new training material to always maintain a current understanding of the field. If the agency will consider the current trends and coordinate with other established programs, it is possible previous mistakes can be avoided and the marijuana programs as a whole can improve their effectiveness.

Section VI: Summary and Conclusion

Almost every state in the country has some type of state or local level marijuana enforcement unit, a large number that are funded by the DEA's DCE/SP program. The DCE/SP has assisted law enforcement agencies in creating and maintaining a somewhat uniform program

to increase productivity and decrease making or repeating common mistakes. The programs have advanced and adapted along with the cultivation techniques used by marijuana growers. Today, it is an on-going battle between law enforcement and cultivators to trying new trends and responding to each other's developments.

Organized criminal DTOs have capitalized on the remote areas of the country and the "medical" marijuana movement along the west coast. Large outdoor marijuana growing operations are being staffed and operated by Mexican drug cartels in numerous states areas of the country; especially in California, Georgia, Tennessee, and North Carolina. Asian, Cuban, and Hispanic organizations have developed operations in quiet neighborhoods in several states such as California, Florida, and many of the states along the Canadian border.

Indoor marijuana growing operations have advanced over the years. As the growing tactics have improved, the quality and potency of the marijuana plants has also improved. By using particular lighting, hydroponic systems, and other various means, a marijuana grower can completely control the indoor environment. This has led to the average THC percentage to increase almost every year.

Marijuana growing operations create a unique safety problem to law enforcement and the general public. The outdoor cultivation of marijuana on public lands and remote areas are often protected by well-designed and strategically located booby-traps intended to scare off or injure

law enforcement, or unwanted intruders to a marijuana patch. Law enforcement teams are often trained to encounter these types of devices, but the general public who may use the public land for hiking and camping are typically not trained and can often wonder into these areas and sustain injuries. The use of chemicals and large amounts of fertilizers can leak into or contaminate natural water sources and poison wildlife.

Indoor marijuana growing operations have specific dangers of their own. Although confrontations with growers, booby-traps, and chemicals are common with indoor and outdoor operations; the types of long term dangers exist more with the indoor operations. Many grows may contain several types of molds common to the marijuana plant and some molds are a result of the moist and enclosed growing environment itself. The grower will often use carbon dioxide to increase the plant's productivity, which can in some cases create an oxygen deficient room that can cause harm to first responders if they are not properly equipped.

The domestic cultivation of marijuana is a thriving criminal justice program and has been for almost forty years. Unlike the waves of other drugs such as methamphetamine, cocaine, or heroin; marijuana and its cultivation has been a steady problem for law enforcement from the first discovery of the marijuana production being greatly underestimated in the early 1980's. Over the years, DEA and their state and local counterparts have continuously experimented with way to detect and dismantle growing operations, and tactics that worked were improved on and those that did not were no longer used.

The recent political topics of medical marijuana and the marijuana legalization effort are only going to complicate the domestic marijuana cultivation issue in the years to come. Currently criminal organizations are taking advantage of the medical marijuana outlets and systems as a “legal” distribution point for their illegal product. As these movements continue, there will always be a need for marijuana investigation/eradication units, and the more information we gather about the organizations and the people cultivating domestic marijuana, the more information we can provide lawmakers. Once lawmakers are aware of the accurate situation, it may allow them to make better judgments in regard to the emerging marijuana effort. Not to mention, the more effective law enforcement can be at dismantling these illegal growing operations, the safer our communities will be.

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