# EXPERIENCES AND OBSERVATIONS WITH THE IMPLEMENTATION OF NON AGRICULTURAL IPM IN EUROPE (SINCE 1982)

E. SCHOLL
Ganzheitliche Geziefer-Regulierung (=Holistic Pest Parrying); Waldstr. 2a, D-66879 Steinwenden, Germany

**Abstract**—Based on the implementation of a most stringent IPM-concept especially tailored for US Military Communities in Europe between 1986–88, guidelines for non-agricultural IPM were developed for the German Government. The implementation was partwise very successful. Selected experiences and observations with the implementation and suggested consequences are being presented: The major challenge is the successful transfer of information and products to those who need it in a way they can use it. Communication and coordination must be adapted in many respects to make an IPM implementation successful. Other observations concern motivation, proper use & useful properties of entomologists, lag times between introduction and implementation, pest related variations in human behavior, and 'pest' problems beyond the reach of a pest controller. The risk-use-assessment of IPM techniques must be looked at interdisciplinary, and it should include e.g. food hygiene, psychology, communication techniques, stress, toxicologic familiarity, repellency, and resistance potential.

## INTRODUCTION, MATERIAL & METHODS

After the Global 2000 Report to the President (Council on Environmental Quality & US-State Department, Ed., 1980), a concept for integrated pest management started to develop for 300 Pest Controllers at 42 US Army Communities all over NATO Europe (= USAREUR), beginning in 1982. In 1986, MGeneral Smith initiated the development of a most stringent IPM Program for the USAREUR after his wife had become hypersensitive to pesticides. Between 1986–88, the USAREUR pest management program was completely redesigned. Pest controllers were urged to implement an array of non chemical pest control techniques, to intensify surveillance, and to perform customer education on IPM, while the approved list of pesticides was cut down to an absolute minimum (10th Medical Laboratory 1986, 1988). Based on the USAREUR IPM Program, the German Government sponsored the elaboration of guidelines for integrated pest management between 1993–95. This elaboration is now available from the German Federal Environmental Agency (Scholl, 1996 – in press).

The USAREUR IPM program included all the basic IPM characteristics that we don't have to repeat here. A lot of energy* was invested into training and education, consultation, surveillance, and what would today be named "quality management". Among the results, there was a pesticide reduction to down to 2% of the previous quantities with less pest problems at the same time, and a major reduction of pesticide storage. Table 2 shows the use of residual insecticides of some Military Communities in 1982 and 1990. When the draw down came just a few years later, there were hardly any hazardous waste problems with pesticides because they had been disposed of in a very responsible manner along with the implementation of IPM. Many infested buildings and pest control shops had been restructured and renovated.

Table 1. Chronological overview; non-agricultural IPM in the US Army Europe (USAREUR) and Germany.

| | |
|---|---|
| 1980 | The Global 2000 Report to the President. |
| 1982 | European Supplement to Army Regulation 420–76 with the first "real" IPM-characteristics |
| 1986 | General Smith initiates the USAREUR Pest Management Study |
| 1986 | Integrated Pest Management for Common Pests in USAREUR |
| 1988 | USAREUR Pest Management Manual |
| 1996 | German Umweltbundesamt (UBA) Texte Nr. 96–017 non-agricultural IPM |

*Energy means here: training and training material, personnel, meeting opportunities, exchange of ideas.


Proceedings of the Second International Conference on Urban Pests.
K.B. Wildey (editor). 1996

Table 2. Quantities of finished spray of insecticides with residual effect used by the Military Communities Bremerhaven (HB), Zweibrücken (ZW), Mannheim (MA), Pirmasens (PS), and Karlsruhe (KA) before (1982) and after (1990) program change (from Engel, unpubl.)

| Year | HB | ZW | MA | PS | KA | Total |
|---|---|---|---|---|---|---|
| 1982 | 5.012 | 5.154 | 13.456 | 2.799 | 5.218 | 31.639 |
| 1990 | 82 | 198 | 4.092 | 429 | 317 | 5.118 |

## RESULTS & DISCUSSION

### Some observations & suggested consequences

An incredible lot of good information and products exists already. The challenge is to get it to those who need it without overstraining the target individuals. Some aspects are discussed below.

*Incorporation of new research into training*

New research, development, and experiences could be effectively incorporated into training and examination material on the basis of annual meetings with ca 12 experienced entomologists, with a central coordinator, and with sufficient manhours devoted to this task during the rest of the year. This system could rather easily be adopted by governments with the DPMIAC† as a model and/or cooperator to create an international training and information material forum. If ever possible, this forum should be multilingual.

*Independence and power of implementers*

The independence of consultants and trainers is a critical factor of high quality relevance. Especially the implementation of non chemical methods could only be expected where training and education were not left to those who have advantages from selling or using chemicals/equipment. Consultancy and training should be performed by public servants, who are equipped with sufficient power.

*Money use*

Of course, money is involved for training & education. After a while, only the supervisors or functionary officials were trained and taught, unless the proper use of money was closely watched to make sure the information gets to those who really need it.

*Availability of material and information*

Where pest controllers could not aquire the material that was presented in the training, or if the technology was not matured, the introduction of new technology ended in frustration. This resulted in very resistant drawbacks. In many cases, pesticide formulation and equipment had evidently been developed very independently from each other. Lack of coordination between producers, formulators, and users of pesticides, and those of equipment and techniques thus limited the success of the implementation. It is strongly recommended to better wait with the implementation of new technology until not only products themselves, but also satisfactory technical background information are available.

Some producers, suppliers, and officials were very reserved with information to IPM entomologists, not considering them customers; others guarded their information from entomologists, fearing environmentalistic pressure. It should be considered though, that implementors can only be as good as they are informed. So called "Environmental pressure

†Defense Pest Management Information Analysis Center.

groups", especially expert committees of the German Association for Environmental and Nature Protection (Bund für Umwelt und Naturschutz Deutschland e.V., BUND) turned out – at least partwise - to be a very efficient and reliable information source when everything else failed.

*Language barrier*

The language barrier is mostly under-estimated. IPM terminology is not taught at school. Very few humans are able to admit understanding problems in the IPM terminology of a foreign language. Translations of training material were often misunderstandable, unless entomologists had proof-read them. Even less humans speak out if they cannot understand scientific terms, no matter what their scientific background is. Teaching was most effective be performed in the mother language and social language of the recipients.

*Dislexy and illiteracy of pest controllers*

Among the phenomena observed, dyslexy and illiteracy of pest controllers were most surprising. Since these persons are focussed on non-verbal communication, it is much easier for them to "think into" a cockroach or a rat. They demonstrated the limits of every written test by failing inevitably. The development of non verbal testing procedures could save most valuable IPM specialists.

*Entomology in Germany*

Especially in Germany, entomologists are a dying out species in the study of biology. The last professorship is just going away without replacement. Agriculture and veterinary medicine take care of pests partwise - they stop looking where cash crop growth ends (=in the mill/butcher store). Entomological research comes from other countries. Results are rare in German language. Accordingly, there is a nation-wide growing information gap in this field. Non-agricultural IPM in Germany requires the renaissance of entomology as a teaching subject at the universities. It might be wise to introduce teaching without research at the university level for this subject.

*Motivation and cooperation*

The implementation worked only where all affected target groups were interested in the change. Therefore, every single individual/group that has to do with pest cultivation, prevention, and/or management, needs to be identified, prepared, and accompanied through the change procedure. Reasons for not cooperating, that we found were: limited interest or receptiveness, lack of flexibility, already existing overstrain, defiance. Note: Every reason is understandable from the viewpoint of the one who has it. Very rare reasons were old or young age, and education. Payment was only a problem, where it was far below a reasonable minimum.

*Lag times and self teaching, role of entomologists and distances*

A long lag time may pass until understanding begins, requiring much patience. I noticed a considerable change six years after I had started to teach IPM. Afterwards, it took only little energy to keep the motivation high; self-teaching becomes standard. Rogers & Shoemaker (1971) observed time frames of at least 15 years for real changes.

Entomologists could be very useful in keeping up motivating, if they were very flexible in traveling, or if the distance was less then a half day trip.

Longterm employment made a PCO job easier, because they knew the locations, persons, and problems. Best is origination from the area, or to speak the local dialect. In areas of industrial urban concentration, a higher personel turnover and/or lower motivation was often observed. A local bonus could help to compensate for higher cost-of-living in those areas.

*Human behaviour*

Some of the variations that were observed in human behavior (tendencies) had a considerable influence on the development or end of a pest population; e.g.: