



Roadmap for
establishing a container
management program
for collection and
disposal of empty
pesticide containers





Contents

I.	Foreword	2
II.	General Considerations	3
	a. Goals of a Container Management Program	3
	b. Program Benefits	3
	c. Requirements for Success and Sustainability	3
III.	Feasibility Assessment	5
	a. Reaching out for information	5
	b. Explore the industry's decision to carry out the program	5
	c. Review the current regulatory framework	6
	d. Look into the acceptance of the program	9
	e. Decide on collection set-up	9
	f. Non-hazardous classification of empty containers	9
	g. Decide on the final destination of the collected materials	10
	h. Branding of the Container Management Program	12
IV.	Pilot Program Implementation	13
	a. Main objectives	13
	b. Program communication launch	13
	c. Ongoing management and review	14
	d. Potential limitations	14
	e. Annual reporting	15
	f. Other sources of information	15
Annex 1	Checklist for Roadmap on Container Management	16
Annex 2	Materials to be collected	20
Annex 3	Waste Management Infrastructure	20
Annex 4	Recyclers	21
Annex 5	Management Committee	21
Annex 6	Format for reporting established program statistics	22
Annex 7	Format for reporting pilot program statistics	24

I. Foreword

The crop protection industry stewards its products throughout their life cycles, from manufacture, distribution and use. In addition, following product use, the industry has developed programs around the world to collect and recycle empty containers.

Globally, since the early nineties, the crop protection industry has implemented empty container collection programs in over 40 countries and more than 25 pilot programs (for the latest map of programs see www.croplife.org). From the 40 mature programs, farmers currently return 66% of all plastic containers shipped. The goal, by 2020, is to continuously improve the farmer return rate, and the number of countries with container management programs, collecting 50% of all primary packaging containers (containers in direct contact with the pesticides) shipped into the global market and recycle as much as feasible into tested and approved end use applications.

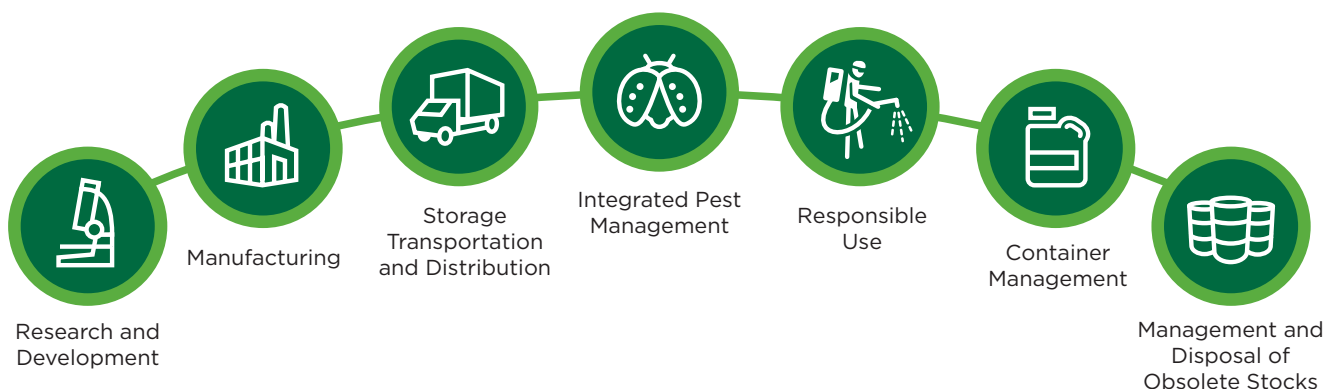
CropLife International has developed a global steering/advisory body – the Container Management Project Team (CMPT) – to provide guidance and advice to individual country program managers on how to establish cost-effective, sustainable programs and to share best practices.

The present document is a summary of the most relevant aspects of a successful program for handling empty pesticide containers originating from CropLife member companies. This summary should serve as a guideline for implementing new programs and the continual improvement of on-going ones.

Introduction

The plant science industry, represented globally by CropLife International, is committed to the proper management or *Stewardship* of their products throughout their lifecycle, from research and development, through use to disposal of waste. The overall aim of stewardship is to maximise benefits and minimise any risks from the use of crop protection products.

Figure 1: Stewardship is a life cycle approach to product management. It is the responsible and ethical way to manage crop protection products from their discovery and development, to their use and the final disposal of any waste.



II. General Considerations

a. Goals of a Container Management Program

The program should provide for the safe, effective and responsible management of all¹ empty properly rinsed pesticide containers with our industry recognized as a leader for this initiative. A Container Management Program should aim:

- To minimize the risk of re-use of empty pesticide containers, particularly for food and water
- To demonstrate industry's commitment to health and the environment
- To demonstrate the commitment of industry to sustainable agricultural practices
- To satisfy clients' (farmers') demands to eliminate empty containers
- To comply with national and international expectations and regulations
- To fulfil our commitment to implement the International Code of Conduct on Pesticides Management, which calls on the industry, in collaboration with other stakeholders, to establish container management programs
- To meet certification needs for good on-farm agricultural practices
- To become a key, and visible, element of the industry's stewardship efforts
- To be a collaborative multi-stakeholder initiative with other participants in the value chain, including non-CropLife members, retailers and farmers, local and national governments and other relevant stakeholders
- To adopt 'recommended practices,' taking advantage of industry's experience from across the world
- To be cost-efficient with continuous implementation of cost reduction opportunities as part of the main goal
- To be based on solid technical science which reduces risk to human health and the environment
- To include an element of monitoring, evaluation and reporting that facilitates program review and improvement based on clearly defined and transparent targets.

b. Program Benefits

- To reduce the risk of on-farm health and safety from improper re-use of empty pesticide containers
- To improve the rural environment
- To help to satisfy employee, shareholder and society's demand for responsible business practices
- To help maintain industry's 'license to operate' through good business practice
- To help ensure that industry's expertise and know-how is utilized to develop cost-effective programs
- To help to avoid unnecessary regulation imposed
- To help reducing CO²-footprint.

c. Requirements for Success and Sustainability

- For all participants – industry, retailers and distributors, local and national governments, as well as farmers and other pesticide users to be convinced of the need for, and the benefits of the program
- For all participants to accept shared responsibility for implementation and/or costs
- For all participants to have clearly defined roles and responsibilities
- For the local industry to remain fully committed to supporting the program
- For the existence of a local plastic recycling industry that can utilize the container plastic for appropriate recycled products
- For the existence of other disposal options (for example cement manufacturing facilities for energy recovery)
- For governments and institutions interested in the environment to get involved at the very onset of a program
- To ensure that local and national regulations are adequate and appropriate – e.g. proper classification of collected waste
- To ensure that good scientific and technical information underlies all stages in the program – e.g. rinsing of containers, risk analysis of final use of recycled material
- For programs to be developed according to the needs and capabilities of each country
- To ensure that the program is endorsed by local authorities
- To ensure that industry, and other relevant stakeholders, monitor the program throughout all its stages of operation.

¹ A program should have the *ability* to deal with all containers – however, in many situations only containers originating from companies that have agreed to support and participate in the container management program will be collected. All companies have the opportunity to join a program.

II. General Considerations

- For the program to be initiated as a pilot project in the first instance, with review and adjustment prior to expansion
- For the program to be established under a sound business approach, with:
 - A business plan
 - Clear processes
 - Long-term self-sufficiency
 - Sustainable financing
 - Consideration for potential Health, Safety and Environmental issues
 - Availability of trained personnel (plus a training plan)
- The program should be preceded by a 'raise awareness campaign' aimed at training of users in, and the promotion of, proper rinsing of empty containers.



III. Feasibility Assessment

a. Reaching out for information:

In order to assess the current situation in a country where a pilot program is intended, information and data collection is essential. This should be considered by reaching out for key sources, such as:

- Potential stakeholders
- Local and international industry players present in the country
- Public and private statistics on the number of containers placed on the market annually
- Opinion polls
- Applicable local and international regulations
- Current practices by established programs in the world.

Such sources should be interviewed to help determine:

- The agriculture situation (crops, acreages, pesticide used, main farming areas)
- Pesticide packaging entering the market (mainly primary packaging which is in direct contact with crop protection products), including size, quantity (expressed in kilos or tonnes) by type of material
- Where crop protection products are used and when (specific time of year, all year round) to help determine location of collection points and collection timing (every month? Once a year?)
- Major manufacturers or suppliers of products sold
- Number of distribution points
- Current disposition of empty pesticide containers, if any
- Recyclers available for each type of packaging (e.g. plastic, metal, aluminum)
- Determine the recycling economics (i.e. the price paid by recyclers for different type of waste)
- Other drivers of the program such as Global GAP requirements, etc.
- Cost of collection – this is dependent on who is identified to collect (retailers, the collection scheme, other), how (farmers bring to a fixed collection point, mobile collection vehicles), what frequency etc.
- Can an approximate assessment of the program costs be estimated from the value of the plastic less the cost of collection and transportation?
- Training costs – this will depend on who is responsible and can this be linked to current ‘responsible use’ or ‘retailer certification’ training
- Promotion and advertising costs
- Transportation costs – this depends on the geography of a country and local/national infrastructure, plus collection frequency and the location of collection points

- Final disposal costs or revenues – this is dependent on end-uses and whether the recycled material has a value (i.e. can it be sold?), as well as, hazard classification (see Pilot Program Implementation section)
- Willingness and feasibility to participate in a program – for farmers this means willingness to return clean containers; for retailers, distributors and/or manufacturers this means willingness to collect; and for all stakeholders this means willingness to contribute to costs
- Willingness of stakeholders to participate on a Management Committee to steer the program
- What are the regulations at regional and local level covering waste collection and recycling, in general, container collection and recycling in particular – do they need to be adjusted to facilitate a feasible program?

b. Explore the industry’s decision to carry out the program

Undertake a series of questions on industry’s interest in, and commitment to, implementing a program for the collection and recycling of empty pesticide containers.

Ask a series of questions relating to the program:

- Are you familiar with CropLife’s container management program and its benefits?
- Do you think it is feasible to introduce such program in your country (if no, why not)?
- Do you think that companies in your country are interested in starting a container management program
- What would the reasons be:
 - Health of farm families?
 - Clean rural environment without littering?
 - Being part of a responsible industry?
 - Image building?
 - Adherence to existing regulations?
 - To act ahead of regulations being imposed?
 - To seek business advantages?
- Would you be willing to contribute financially to the program?
- Are you aware of any current legislation relating to pesticide containers?

These questions should be aimed at all potential program participants. On the basis of the responses, a clear idea of the initial feasibility of a program can be initiated. This would include what educational training or lobbying programs are needed and what time-frame for such an initiation is possible, including what needs to be in place before a start-up.

c. Review the current regulatory framework

This includes shipping and storage regulations, waste control regulations that can often be the driving force for stakeholder participation (although, if very lax, may be a negative influence on participation) and regulations that would influence recovery options (e.g. incinerator/cement kilns emission standards, official approval of a non-hazardous classification of properly rinsed empty containers, etc.).

This analysis will help determine if discussions are required with authorities to introduce or adjust regulations – e.g. classification of waste, see ‘Pilot Program Implementation’ section.

This analysis will also give an indication of whether participation in a program is likely to be a legal requirement in the country for registrants and other stakeholders. A legally mandated scheme ensures that all groups contribute to the scheme (financially, or by an obligation to return properly rinsed containers to a collection point etc.). However, it runs the risk that it will lack the drive for efficiency that voluntary schemes may have. Ultimately, an industry-led scheme will push for maximising both collection and cost-efficiency. Note in Table 1 that 75% of containers collected are under legally mandated schemes.



Table 1: Container management programs around the world

Country	Brand	Legal status	Classification of the plastic	Website
Argentina	AgroLimpio	Voluntary	Hazardous (special waste in some provinces)	www.casafe.org
Australia	DrumMuster	Industry-Government Co-regulation	Non-hazardous	www.drummuster.com.au
Austria	FCIO	Legally mandated	Non-hazardous	www.fcio.at
Belgium	PhytofarRecover	Legally mandated	Non-hazardous	www.phytofarrecover.eu
Bolivia	CampoLimpio	Voluntary	Hazardous	www.apia-bolivia.org
Brazil	InPeV	Legally mandated	Non-hazardous	www.inpev.org.br
Canada	CleanFarms	Voluntary	Non-hazardous	www.cleanfarms.ca
Chile	CampoLimpio	Voluntary	Non-hazardous	www.afipa.cl/web
Colombia	CampoLimpio	Legally mandated	Hazardous	www.campolimpio.org
Costa Rica	Fundación Limpiemos Nuestros Campos	Voluntary	Special waste	www.flnc-cr.org
Croatia	CROCPA	Legally mandated	Hazardous	www.crocpa.hr
Dom Republic	CampoLimpio	Voluntary	Hazardous	www.afipard.org
Ecuador	CampoLimpio	Legally mandated	Special waste	www.innovagro.org.ec
El Salvador	CampoLimpio	Voluntary	Hazardous	www.apaelsalvador.com
France	ADIVALOR	Legally mandated	Non-hazardous	www.adivalor.fr
Germany	PAMIRA	Legally mandated	Non-hazardous	www.pamira.de
Greece (PP)	HCPA	Legally mandated	Non-hazardous	www.esyf.gr
Guatemala	CampoLimpio	Voluntary	Non-hazardous	www.agrequima.com.gt
Honduras	CampoLimpio	Voluntary	Hazardous	www.croplifehonduras.org
Hungary	CSEBER	Legally mandated	Hazardous	www.cseber.hu
Korea (South)	KCPA	Legally mandated	Non-hazardous	www.koreacpa.org
Luxemburg	PhytofarRecover	Legally mandated	Non-hazardous	www.phytofarrecover.eu

(Continued)

Country	Brand	Legal status	Classification of the plastic	Website
Mexico	CampoLimpio	Voluntary	Hazardous	www.campolimpio.org.mx
Nicaragua	CampoLimpio	Voluntary	Non-hazardous	www.anifoda.org
New Zealand	Agrecovery	Voluntary	Non-hazardous	www.agrecovery.co.nz
Panamá	CampoLimpio	Voluntary	Hazardous	www.andiapanama.org
Paraguay	CampoLimpio	Voluntary	Non-hazardous	www.cafyf.org
Peru	CampoLimpio	Voluntary	Non-hazardous	www.cultivida.org.pe
Poland	PSOR	Legally mandated	Hazardous	www.psor.pl
Portugal	Valorfito	Legally mandated	Hazardous	www.valorfito.com
Romania	RIGK	Voluntary	Non-hazardous	www.rigk.ro
Russia (PP)	AEB	Legally mandated	Non-hazardous	www.aebrus.ru
Serbia (PP)	SCPA	Legally mandated	Non-hazardous	www.secpa.rs
Slovenia	SLOPAK	Voluntary	Non-hazardous except T	www.slopak.si
South Africa	CropLife SA	Voluntary	Non-hazardous	www.croplife.co.za
Spain	Sigfito	Legally mandated	Hazardous	www.sigfito.es
The Netherlands	STORL	Legally mandated	Non-hazardous	www.storl.nl
Uruguay	CampoLimpio	Legally mandated	Non-hazardous	www.camaradeagroquimicos.org.uy
USA	ACRC	Voluntary	Non-hazardous	www.acrecycle.org
Venezuela	Agricultura Limpia	Voluntary	Non-hazardous	www.afaquima.com

PP = Pilot Project

There are also other pilot programs in earlier stages in **Africa Middle East:** Botswana, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mauritius, Namibia, Swaziland, Tanzania, Uganda, Zambia; in **Asia:** China, Indonesia, Sri Lanka, India, Philippines, Vietnam; in **Europe:** Turkey, Bulgaria

d. Look into the acceptance of the program

This will include local community acceptance for the siting of collection points, willingness of farmers and/or retailers to collect, and the manufacture of the plastic recovered into acceptable new products. Reaching out to local NGOs can also raise awareness and be effective in assisting training campaigns and communication programs.

e. Decide on collection set-up

Clean, properly rinsed containers are critical to the cost efficiency of the program – even in the absence of a program, thus this should be promoted. Details of proper rinsing procedures (triple rinsing, pressure rinsing) can be found in the ECPA guidelines references in Section b, and the CropLife International guidelines on the Safe and Effective Use of Crop Protection Products [here](#).

The type of collection procedure needs to be decided depending on the information obtained from the actions above. For example farmers can deliver triple-rinsed (cleaned) containers to a collection point; or/and a mobile unit (vehicle) which collects at predetermined times and delivers to a fixed collection point – this is likely to be more suitable when farmers are able and willing to safely store containers for a season, which are then collected annually. It can save on the cost of building numerous collection points.

Collection points can be:

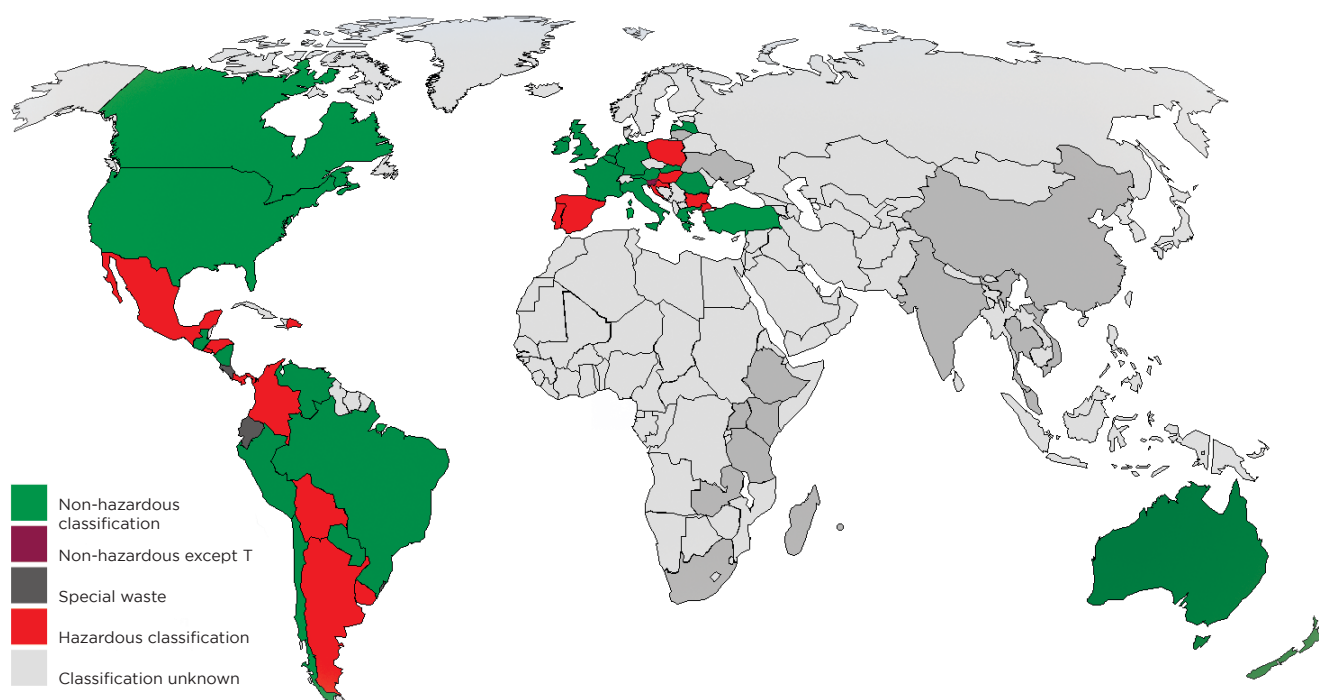
- Retailer/distributor sites
- Medium sized or large sites that are manned – these may also be the point at which inspection (for proper rinsing, i.e. cleanliness) is made, plus processing such as compaction and shredding
- Small, local, unmanned – mostly suitable for small-scale farmers. This option, however, has to be carefully analysed, as unmanned collection points can easily be utilized for littering, thus posing levels of contamination if recycling is considered.

Funding of collection points can be by the program itself, or by local authorities or retail/distributors, as part of their contribution to the program.

f. Non-hazardous classification of empty containers

Currently, many countries have adopted their own regulations on 'hazardous waste.' Pursuant to the Basel Agreement, empty, UNCLEARED, pesticide containers are classified as hazardous waste. However, there is considerable data available to demonstrate that properly rinsed containers (i.e. triple-rinsed or pressure-rinsed) should be classified as non-hazardous; both FAO and CropLife International accept and recommend this, and many countries have adopted a non-hazardous classification (see Table 1). However, some countries still classify this as

Collection Schemes Classification (2015)





hazardous – where this is the case it severely limits the feasibility of a sustainable program in the longer term. Appropriate advocating efforts should be undertaken to classify properly rinsed containers as non-hazardous. This classification increases the recycling value of the plastic as non-hazardous material is considered as a raw material rather than waste.

Therefore, pilot programs should aim to collect properly rinsed containers only – this is to maintain the ‘non-hazardous’ nature of the recovered material, which has significant impact on costs and the ability to recycle the plastic. Containers should, therefore, be visually inspected at collection points – if manned, dirty containers should be rejected, either to be properly rinsed by the owner or taken to a hazardous waste site (where the owner may have to pay for disposal). Unmanned collection sites run the risk that dirty containers, or other type of waste, will be deposited – therefore the suitability of this approach needs to be considered. The problem is addressed through appropriate training, and ‘peer pressure’/policing by the local community. If not carried out at initial collection, inspection needs to be carried out at the manned larger collection points (where the contents of the unmanned sites are delivered). Dirty containers should be directed to a hazardous waste stream, unless they can be washed effectively and economically at the collection/processing sites.

g. Decide on the final destination of the collected materials

No collection and recovery program can be initiated before the final destination of the collected material is established and the recycling application developed and approved by relevant authorities. Each country should determine what is the most feasible and cost-effective option for their particular situation.

Possible options for final disposal:

- Recycling of materials for other applications (preferred)
- Energy recovery in cement kilns or power plant
- Destruction at approved incineration plants.

Containers SHOULD NOT be disposed through:

- Indiscriminate dumping
- Open-air incineration, including incineration in 200 litre drums
- Incineration in unapproved incinerators.

Note: Some countries also allow disposal in sanitary landfills, but CropLife International does not recommend this as a preferred option.

With respect to the option ‘Recycling of materials for other applications’, it is recommended that those applications or end-uses undergo a risk analysis either by the collection scheme, a recycler, a government agency or any other competent body. A general principle is that recovered material should, ideally, be handled twice – once at collection/processing and once when put to its final use – this is the case when plastic containers are used as a fuel source for energy recovery, or recycled into end-uses such as electrical conduit or concrete strengthening roads. For a complete list of recommended and tested end-uses, please see Table 2.

CropLife International, in collaboration with CropLife Regional Associations and Research Institutes, has undertaken a number of risk analyses of end-uses. Standards for conducting risk analysis tests are available at croplife@croplife.org and a list of studies already conducted can be found [here](#).

Table 2: End-uses for recovered plastic containers that have undergone a risk analysis by industry supported collection schemes

Tested end uses	Rejected end uses
1. Plastic lumber or timber and substitutes	1. Flower pots
2. Waste drums (Fibre)	2. Corner stacks for pallets
3. Concrete saver	3. Blends with virgin material for unknown uses
4. Corrugated conduit buried in walls and soil for electric wires (electric conduit, boxes, sheaths, tubing)	
5. Pesticide containers with recycled material between virgin material	
6. Drainage/sewage piping	
7. Electricity pylon plastic cross piece insulators	
8. Caps for agricultural containers (triex)	
9. Car battery casing	
10. HDPE Rope	
11. Motor oil containers (Triex)	
12. PET Rope	
13. Waste bags for incineration (or hospital trash bags)	
14. Waste drum HDPE	
15. Refuse bags (50/50 blend)	
16. Agricultural fence posts	
17. Pallets (Industrial use only)	
18. Incineration barrels (hazardous)	
19. Curb stops	
20. Marine Pilings	
21. Nailing boards for concrete forms	
22. Commercial truck/manure spreader decker boards	
23. Construction site maps	
24. Highway guard rail posts	
25. Highway signposts	
26. Liners for highway salting trucks	
27. Railroad ties	
28. Road speed bumps	
29. Scaffold nailing strips	
30. Sound barriers	
31. Truck sub-floor components	

Note: CropLife International recommends end-uses that have been tested against international minimum standards on pesticide residues. Please find the guidance document [here](#).

Specialised large (circa 200 litre) containers should be collected by the pesticide manufacturer or licenced dealer only, who is responsible for final disposal at 'end-of-life'. This option is not recommended for smaller containers for safety and security reasons:

- To prevent inappropriate use of containers (e.g. storage of other liquids, including drinking water) farmers should be trained to puncture used containers
- The presence of numerous proprietary containers will facilitate their use for refilling with counterfeit products.

It is noteworthy that the Brazilian Container Management Program, InPEV, is currently recycling (not re-using) polypropylene caps into new container caps. For more information please see guidance document [Collection and Adding Value to Caps](#) [here](#).

Table 2 shows those tested and recommended end-uses for plastics derived from pesticide containers. The general criteria for decision making on end-uses is as follows:

- Social and economic perception and impact should be analysed before approval
- Recycler and end product risk assessment
- Applications where products may not come into human contact on a routine basis, either by sandwiching in virgin plastic or embedding this in concrete or other substrates
- Mainly outdoor and industrial applications
- Ideally underground/enclosed applications.

h. Branding of the Container Management Program

It is recommended that a container recovery program should be 'branded.' Please see Table 1. This serves two functions:

- Highlights the scheme, encouraging participation of stakeholders
- Excludes 'freeloaders,' i.e. containers of scheme participants are recovered – others are rejected (note however, that participation in the program should be open to all – this is a 'must' if participation in a recovery scheme is a legal requirement in the country)
- Makes the program easier to communicate to all stakeholders.

For those countries that have no brand but are interested in branding their local collection scheme, CropLife International has made available the CleanFARMS brand. Originally developed by CropLife Canada, the brand is now available to members of the global CropLife network that are implementing container management programs. The CleanFARMS brand is an effective tool to promote and align recycling efforts in a country or region; build awareness of programs among external stakeholders; and communicate the industry's commitment to help farmers protect the environment. Please contact croplife@croplife.org for further information.



IV. Pilot Program Implementation

Once the feasibility assessment has been finalized and the information gathered analysed, it is time to implement the pilot program. In some countries, one or more pilot programs may be needed to reach conclusions that would serve as a guideline to rollout the program in other regions within the country.

a. Main objectives

It is recommended that a realistic goal for a collection rate should be determined based on the information gathered in the earlier phase. For some pilot programs, determining a specific collection rate that is expected to be reached works best (e.g. 15% of the collection potential determined in the feasibility assessment). The pilot program should always be aimed to accomplish the safest and most cost-effective disposal and/or recycling of empty pesticide containers.

Goals to be reached should have at least a three-year timeline. The goals suggested are as follows:

- Total amount collected
- Percent collected (= kg collected/amount entering the market)
- Cost per kg of packaging collected (total cost/eliminated kilos)
- Percent of program self-financing (= revenues generated by the program from sale of recycled material/total cost of program)
- Sources of income – includes levies on sales or amount of product entering market, donor contributions (particularly on start-up), sales of recycled material, contributions from local, national or regional governments, contributions from other stakeholders etc.

There are also additional aspects and goals to be determined based on the feasibility assessment phase:

- Number of people to be trained under triple rinsing and awareness campaigns in collaboration with Integrated Pest Management & Responsible Use Programs
- Define the region(s) where the program will be carried out
- Define materials to be collected
- Define the ways of collecting (stockpiling center or mini-center)
- Define ways to ease the transportation of the material (e.g. baling, shredding, etc.) and logistics to the recycler
- Develop a full assessment of potential recycling options and the economics of this undertaking
- Define the final destination or use of the newly produced end product
- Define human resources
- Draw up a budget for investments, revenues and expenses

- A Management Committee of Stakeholders is recommended to be set up as a way to integrate everyone's cooperation into the program
- Plans to expand the program should be considered in order to reach optimal collection levels, and assure the continuation of the program in the future.

b. Program communication launch

A vital part of the success of any pilot program is to communicate its goals and benefits to all involved stakeholders and, more importantly, to the public in general. Launching the program is then recommended, as well as maintaining an active public relations agenda, whenever possible. This not only shows transparency on the processes and efforts undertaken by the industry and stakeholders, but also helps positioning the program in the public eye advocating the benefits and milestones. The involvement of the government (for example the Ministry of Agriculture and the Ministry of the Environment) is ideal as they can benefit from the good political mileage.

Components of a communication program should include:

- A communications strategy involving all stakeholders
- Advertising and promotion
- Types of messages or information to be released
- Target audiences
- Frequency of information
- Media.

CropLife International has also made available a number of communication pieces intended to help country managers to better communicate the benefits of the program.

- Slide deck: A high level description of the Container Management Program with latest figures and graphics
- Fact sheet: Describes the program main areas and provides program examples from around the world (Canada, Brazil, Germany, USA)
- Brochure: Describes the program main areas, and provides program examples from around the world (Canada, Brazil, Germany, USA)
- Infographic: Showcases the positive environmental impacts of the programs using every day terms and analogies
- Media guide: Provides key aspects and practices that should be taken into account when establishing media relations with key players
- Poster on triple rinsing: Targeting farmers, this poster has proven to be a very helpful tool when raising awareness of the triple rinsing technique.

Please visit [stewardship container-management](#) to download these documents.

There are also opportunities to advocate for program benefits through CropLife International's Stewardship Newsletter *Leading the Vision* that features successful stories on stewardship three times per year, as well as newsletters produced by the CropLife regional associations.

c. Ongoing management and review

In order to effectively manage the pilot program, a Management Committee should be set up. Leading stakeholders should appoint a representative that has the authority to make decisions/commitments on this Committee.

Appointing a manager or person responsible for overseeing the pilot program is also highly recommended. Experience shows that the best candidate is a person having expertise in the pesticide industry.

A *Checklist for implementing the Roadmap to establishing a Container Management program* has been developed to help advance the pilot program while tracking progress on goals and milestones. Please see Annex 1.

d. Potential limitations

It is normal that during the implementation of pilot programs implementers face limitations and difficulties. Experience shows that there are situations that need to be addressed on a regular basis:

Return rate

A low rate of return can occur at any time but most likely at the beginning of the pilot program. There are a number of reasons for this: lack of or ineffective awareness campaigns targeted at farmers prior the launching of the pilot program; reluctance of the farmers to change behaviour regarding returning empty containers; the intrinsic value of the plastic incentivizes farmers to trade the container as opposed to returning it to the program, etc.

CropLife International has in the past held working groups with pilot programs to discuss ways to improve return rates, and various options have been raised:

- Make return of containers a legal requirement
- Incentivize (e.g. certification)
- Tax incentive.

How to get 'Buy-in' from members

There are situations when programs are missing key market players, and/or those involved show a low level of commitment. Under such situations it is important to focus efforts on:

- Messaging through all companies (international and national)
- Utilize opportunities such as CropLife International meetings to raise this concern seeking for leverage at both regional and local levels
- Influence through the value/distribution chain must be enhanced and reinforced (e.g. distributors)
- Corporate Social Responsibility should be a good opportunity to improve membership
- Voluntary standards and requirements that can be addressed by joining the program, e.g. Global GAP.

Reduce volumes of waste (number of containers)

The Industry is focused on developing more suitable materials/packaging to the market, not only fulfilling users' needs but also posing minimum risks to the environment. Some premises for the Industry are:

- The distribution chain must ensure pack sizes suitable for market conditions with a focus on larger farms
- Companies should include waste management in the life-cycle cost analysis
- Schemes such as the Spray Service Provider² (SSP) have proven extremely useful
- Container design.

Free-Riders

Situations involving free-riders (i.e. companies that are not part of the program but return their containers free of charge) are very common when implementing a program. This should be addressed with a very proactive attitude, engaging and inviting them to become a leading member to fully enjoy the benefits. Some aspects to consider while addressing this issue are:

- Demonstrate value/benefits of the program, such as healthy farm families from non-reuse of empty containers and an improved rural environment
- Could avoid regulations being imposed if all companies are involved voluntarily with the program
- Awareness raising to engage non-participating companies
- Motivate the distribution chain into the system
- Push for regulation (e.g. Waste Management Act)
- Only collect packs from registered 'branded schemes' through logo identification. (e.g. the Australian program drumMuster has imbedded its logo on the shoulder of the containers).

² The SSP Program is a training model used by CropLife Africa Middle East to address the farmers' needs on pesticide applications, where individuals are trained on IPM principles and responsible use of pesticide to become a spraying provider to their own communities. See more information [here](#).



e. Annual reporting

It is crucial for a pilot program to report milestones and also difficulties faced during the implementation of the program. Any basic method for tracking activities and progress is highly recommended.

CropLife International collects statistic reports from industry-led schemes and recommends other programs to do so; this helps to outline a global picture on plastic collection. Forms for collection and reporting of data are available in Annex 6 and 7. It is noted that some of the detailed information on individual collection schemes is confidential and should not be shared among the schemes. All data is handled in compliance with competition laws. As a result, it is policy only to report aggregated data.

f. Other sources of information

It is recommended to review other information available on container programs published by the CropLife network:

- European Crop Protection Association, ECPA. **Crop Protection Plastic Containers – The case for a non-hazardous waste classification, 2007**
- European Crop Protection Association, ECPA. **From Discovery to Recovery – Waste classification gives new life to old containers, 2007**
- European Crop Protection Association, ECPA. **Management of Re-processors and Recyclers**
- Food and Agriculture Organization of the United Nations, FAO. **Guidelines on Management – Options for Empty Pesticide Containers, 2008**
- CropLife International. **Sustainable packaging – The case for rinsing used pesticide containers, 2010.**
- European Crop Protection Association, ECPA. **Container Management Guidelines – Building effective and integrated strategies for packaging reduction, design, rinsing and recovery, 2005**

Pilot programs should also be in contact with other programs around the world. CropLife International provides opportunities for sharing know-how and information during bi-annual workshops dedicated to improve performance among both mature and pilot programs. Table 1 contains more information on other programs, including a website list of industry-led container management programs.

Annex

Checklist for Roadmap on Container Management

Checklist for Implementing the Roadmap to establish a container management program for collection and disposal of empty pesticide containers.



Annex 1. Check list for implementing the Roadmap to establishing a Container Management Program of empty pesticide containers

	Answer (Yes / No)	Comments
1. Sources of information contacted		
a. Local and international industry present in the country		
b. Public and private statistics		
c. Applicable local and international regulations		
d. Current practices by established programs in the world		
2. Stakeholders contacted		
a. Training bodies (farmers, distribution channels, Government authorities)		
b. Waste companies (Authorised Contractors – Recycler / Incinerator)		
c. Energy recovery (Cement kilns, Power plants etc)		
d. Safety auditors for HSE audits		
e. Advocacy groups / NGOs / Influencers / Opinion leaders		
f. Outreach and Communication (TV, Radio, Newspapers and other media)		
g. Funding agency / Donor (for pilot and/or scale-up)		
h. Other industry (domestic) associations		
i. Food industry partners / associations / companies		
j. Others (specify)		
3. Industry awareness of the program		
a. They are familiar with CropLife International's CM program and its benefits		
b. They believe it is feasible to introduce said plan in the country		
c. They are interested in starting a CM Program		
d. What would the reasons be:		
i. Is it a responsibility of the industry?		
ii. Image building?		
iii. Adhere to existing regulations?		
iv. To act ahead of regulations?		
v. To seek business advantages?		
e. They are willing to contribute financially to the program		
4. Existing regulations in the country:		
a. Environment Protection		
b. Pollution Control		
c. Crop Protection Products		
d. Biotechnology Products		

	Answer (Yes / No)	Comments
e. Other agro-inputs		
f. Packaging regulations (hazardous material)		
g. Empty pesticide containers		
h. Levy on pesticides		
i. Levy on any other agro-wastes		
j. Regulatory approval from authorities before start collecting empty containers		
k. Regulatory approval from authorities before setting up a facility (collection point)		
5. Collection set-up		
a. The program itself will fund the collection points		
b. There are partners (e.g. Government, others) that will fully or partially fund the collection points		
6. Hazardous vs Non-hazardous classification		
a. Are triple-rinsed empty containers classified as non-hazardous waste		
b. Is there an official approval of non-hazardous classification of rinsed empty containers?		
7. Final destination of collected plastic		
a. The plastic collected will be recycled		
b. The plastic will be disposed of as energy recovery in cement kilns		
c. The plastic will be disposed of in approved incineration plants		
d. Disposal options for other collected materials (metal, flexible packaging, cardboard) have been studied and determined		
8. Branding of the Container Management Program		
a. Participating members are aware of the brand CleanFARMS and its benefits		
9. Implementation of the Pilot Program		
a. Regions where the program will take place		
b. Materials to be collected (see also annex 2)		
c. Collection rate by material		
d. Cost per kilo collected by material		
e. Percent of program self-financing (revenues from sale of recycled plastic)		
f. Funding (i.e. levy, contributions from members, government, stakeholders)		
g. Ways to collecting plastic		
h. Ways to condition the material (baling, shredding, etc.)		
i. Assessment of potential waste companies & recycling options (see also annex 3 & 4)		
j. Final disposal of collected materials		
k. Staff to be hired		

	Answer (Yes / No)	Comments
l. Budget for investments, revenues and expenses		
m. Number of people to be trained on triple rinse		
n. Define materials to be used during training campaigns		
o. Plans to expand the program:		
i. Percent Collected (= kg eliminated / Collection Potential)		
ii. Elimination cost per kg (= total cost / eliminated kilos)		
iii. Percent of program self-financing. (= revenues generated by the program / total cost of the program)		
iv. Define the advertising and promotion program		
v. Define ways of disposal		
vi. Define way to condition materials		
vii. Define the training needs and devising a training schedule		
viii. Defining the areas or regions to set up the program		
ix. Defining the materials to be collected.		
x. Define responsibilities of each party involved in the program.		
xi. Define the cooperation by each stakeholder and the way to integrate that cooperation into the program.		
xii. Defining funding sources		
xiii. Define a sustainable model for the program to carry on		
10. Program communication launch		
a. There is a communication strategy involving all stakeholders		
b. There is an advertising and promotion plan for the program		
c. There are key messages and information to be released		
d. Target audiences are defined		
e. There is a media guide in place		
11. Management and Review		
a. A Management Committee made up of leading stakeholders with clear roles and responsibilities has been set up (see also annex 5)		
b. A manager has been appointed as responsible for overseeing the program		
c. Contact with other pilot and/or mature programs is in place to share good practices/information		
d. A exercise mapping all potential limitations has been conducted (e.g. low return rate, buy-in from members, volumes of waste, free riders)		
12. Annual reporting		
a. There is a system in place to track activities, progress and statistics on the program (see also annex 6 and 7)		

Annex 2. Materials to be collected

Type	Materials	Quantity (tonnes)	
		Shipped to market	Recovered (if any)
Metal	Aluminium		
	Tin		
	Steel		
	Other		
	Total metal		
Rigid plastic containers	High-Density Poly Ethylene (HDPE)		
	HDPE with barrier (e. g. polyamide, EVOH, fluorinated PE)		
	PET (e.g. polyamide, EVOH, fluorinated PE)		
	Polypropylene		
	Total rigid plastic		
Flexible bags / sachets / sacks	Low Density Polyethylene		
	Metalized		
	Paper with interior lining		
	Total Flexi		
Boxes	Cardboard / Paper packaging		
	Total Cardboard		
Others	Glass		
	Total Glass		
GRAND TOTAL			

Annex 3. Waste Management Infrastructure

Players and Organizations	Number	Details
Public recyclers (government)		
Private recyclers		
Cement kilns		
Others		

Annex 4. Recyclers

Players and Organizations	Number	Details
Public Recyclers (government)		
Private recyclers		
Informal collectors / recyclers		
Others		

Annex 5. Management Committee

Stakeholders / Organizations	Name and Designation	Contact Details (Email / Phone)
CropLife International members		
Other industry associations / non-members		

Annex 6. Format for reporting established program statistics
(to be filled out by the country manager only or the CropLife International Regional manager)

Container Management Program - Statistics for year YY							
Country:							
Name of Responsible Person:							
Material	Plastic primary (1) containers smaller sizes of 25 litres or less	Plastic primary (2) containers from drums/totes over 25 litres, single or multi-trip (end-of-life)	Metal containers primary	Paper containers primary	Others (please specify)	Container caps	Secondary cardboard or other containers
Kg shipped							
Kg collected							
% collected							
% classified hazardous							
% recycled							
% energy recovered							
% incinerated without energy recovery							
% landfilled							
% others (please specify)							

For primary containers (1) and (2):	Local currency	US\$
Operational costs (collection centres/logistics)		
Fixed costs (admin, labour, communications)		
Less: Revenue from sale of plastic		
Total Net Program Costs \$US		
Total Net Program Costs per Kg: \$US		

Summary of revenues from the program:	Local currency	US\$
Total revenue from levy (tax to be imposed) to the pesticide industry		
Total revenue from containers charged to allied industries		
Revenue from sale of plastic for recycling (ref column 1)		
Revenue from sale of drum plastic (reference column 2)		
Total Program Revenue		

Health, Safety and Environmental and branding questions:	
1.	Please report any health, safety or environmental “incidents” which occurred as a result of operations of the container management program in your country in 2013: (for example: spills, lost time accidents)
2.	What actions were taken to ensure no recurrence of similar incidents:
3.	Please list all end use applications for your recycled plastic:
	a) Are all end use applications known?
	b) Are all end use applications known for plastic from drums and totes?
	c) Are all end use applications approved with technical testing completed?
4.	How are properly rinsed containers classified?
	a) Hazardous or non-hazardous?
	b) Are containers inspected?
5.	Government regulation:
	a) Does government mandate our industry to manage empty pesticide containers?
	b) Does government mandate farmers to rinse/return empty pesticide containers?
	c) Are there other influencers who require farmers to return empty pesticide containers?
	d) Does government ban and enforce open burning or landfill disposal of empty pesticide containers?
6.	Does your collection scheme use the CleanFarms brand? If yes please answer next question

Annex 7. Format for reporting pilot program statistics

(to be filled out by the country manager only or the CropLife International Regional manager)

CONTAINER MANAGEMENT PROJECT TEAM

Goals and Measurements

PILOT PROGRAMS

(revised dd/mm/yy)

[illegible]

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CropLife International is the voice of the global plant science industry. It champions the role of agricultural innovations in crop protection and plant biotechnology in supporting and advancing sustainable agriculture; helping farmers feed a growing population while looking after the planet; and progressing rural communities. The world needs farmers, and farmers need plant science. CropLife International is proud to be at the heart of helping farmers grow.