

PA1, PA2: THEMATIC REPORT ON OPTIMISATION OF FOOD PREVENTION IN PRIMARY PRODUCTION

Version 1
09 2019



1. Food Waste Prevention in Primary Production: PA1 (BOKU)

1.1. Feasibility Study overview

The feasibility study for PA1 focuses on food waste prevention in primary production in Vienna and hinterlands. First general information on data of food losses in that first production stage was researched, not only in Austria respective Vienna but also on a more general level. Further already existing initiatives (worldwide) and measures to prevent food waste were identified and some best practise examples (also mentioned in D.T1.2.1) were described. In parallel contact to farmers in Vienna and surroundings were established to find potentially stakeholders and partners for the pilot action. First ideas to concrete pilot actions were discussed. At the Food Waste Hackathon Vienna, the idea with context to food prevention in primary production was the winner and supports the pilot actions. Last but not least legal aspects with respect to food waste prevention activities in primary production were considered.

1.2. Implementation of pilot actions

Within PA 1 the achievements on food waste prevention in primary production in Vienna and hinterlands. Within this pilot action (PA1), an initial data basis of the gleaning potential of a range of field crops has been compiled and further findings on these food losses could be obtained in the course of field surveys. The results of gleaned crops reveal a differentiated picture: In addition to various influencing factors and site-specific conditions, especially harvesting technology plays an essential role. The quantity of collected leftover-crops on the investigated fields amounts to maximally 3 percent of the total yield.

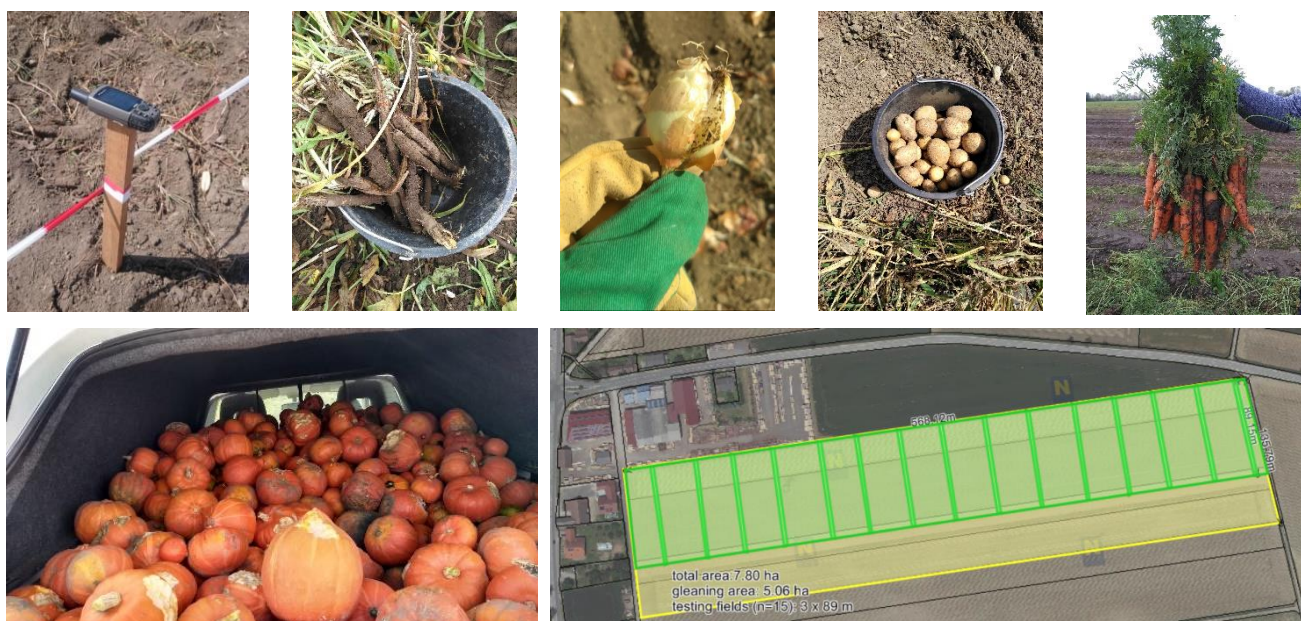


Figure 1: Gleaning action and gleaned field fruits

However, that affects significantly 1) the amount of avoidable food losses and 2) the profitability of any post-harvest, depending on the planted crops and yield. A roundtable discussion with stakeholders of the primary sector staked out the legal framework, discussed each representative's point of view, and advanced a preliminary outline of a distribution network. Additionally, the participants addressed what is missing or what exactly it needs to implement such a distribution network. Together the participants tried to develop solutions for the distribution of edible gleaned food and sorted stock goods; clarify the legal framework relevant for gleaning activities as well as to find ways to implement an organised gleaning platform in the urban area of Vienna. Incidentally, networks between the involved farmers and potential customers of surplus or rejected food could be created in advance.



Figure 2: Round table

1.2..1. Gleaning

While establishing a gleaning network it turned out that the implementation of “classical” gleaning activities as known from other European and worldwide countries need different framework than possible in Austria/Vienna. Identified reasons after discussion with farmers are the small-scale structure at most of the farms in Austria. Farmers don't want to have external people on their fields, they are afraid of pollution or that people are going to glean on the neighbours (= wrong) field. Much more appreciated by farmers is to find solution for already harvested produces which are not sellable due to different reasons. Still some of the conducted gleaning actions turned out as reasonable and feasible solutions.

> *Hilfswerk Gleaning Action*

During conduction of gleaning actions at different farmers a contact with a social organisation took place. Wiener Hilfswerk is a social service organisation and operates social, social-medical and socio-educational institutions. A delegate of Wiener Hilfswerk also was participating at the round table and after checking some basic framework conditions a gleaning action was organised. Wiener Hilfswerk has a huge number of volunteers which can be used in different areas and a coordinating body who is organising these volunteers. Additionally, Wiener Hilfswerk runs social supermarkets, where the gleaned products can be sold to people in need to a very cheap price.



Figure 3: Gleaning action and gleaned field fruits

During the Hilfswerk Gleaning action which last 1 day and the support of 5 persons 180 kilogram of green salad were collected and brought to the social supermarket.

Although the volunteer's network and the customer side is already clarified from the beginning, the logistic issue is still a big burden. The identified challenges in terms of organising a gleaning event are:

- **Time frame:** the timeframe for collecting the remained field fruits is quite tight. It is in most of the cases not possible being informed very early in advance when the gleaning can take place. In most of the time the farmer informs the gleaning people the evening before or in the morning when they start harvesting. After harvesting in most cases the field has to be re-worked by the farmers early. Even though the volunteers are available on call, the coordinator has to organise is very quickly.
- **Transport:** different transports take place. First volunteers have to get to the field. In order to respect environmental effects, it is reasonable to go by public transport or at least all together in a transporter or as little cars as possible. Going public leads to other challenges in terms of bringing the collected field fruits to the customer. This is the second aspect in terms of transport: a big car (transporter or similar) is needed. This is not only to bring people to the field but mainly to bring equipment (boxes, tools) to the field and the gleaned field fruits to the customer.
- **Customer:** the harvest amount is due to different reasons (see Deliverable D. T2.1.2) always different and in most cases cannot be planned in advance. These lead to challenges in terms of customers. A lot of customers have restricted storage capacities and cannot overtake and store the field fruits appropriately. Mainly the cooling issue is highly depending on and important for some kind of field fruits. Additionally, some of the field fruits have to be processed very soon in order to use as much as possible and not waste the products. So the customers have to have the possibility and flexibility to do so. For the social supermarkets, which could solve most of these points, the cleanness of the products was one of the most challenging parts. Each fruits and vegetables (except potatoes) must be kept free of soiling and dirt due to legal requirements. That needs washing opportunities either at farmers (usually) or at supermarkets level, that leads to additional effort and costs.



Finally, the pilot activities in terms of gleaning network implementation showed that organising a sustainable gleaning network of lot of different issues, starting form financing to personnel and logistic issues has to be considered.

Another option turned out to be more practical and easier to implement is the organisation of single gleaning events.

> **Event Gleaning at ADAMAH BioHof**

A gleaning event for carrots at ADAMAH BioHof was planned. During the Hoffest (see >) persons interested to participate at gleaning events could register themselves. Additionally, press releases and announcement by social media channels were done to promote the gleaning event, even though no date was fixed. Later on a short-term date was fixed and the interested persons were informed. Meeting point was at ADAMAH BioHof. This as well as the short-term date seemed to be restricting aspects for all interested persons. As mentioned earlier, farmers have to wait for ideal harvest conditions and harvest spontaneously which complicates the organisation of the gleaning event.

On the day of the gleaning event two people showed up. A gleaning of carrots also wasn't possible anymore, as due to the weather conditions they had to be harvested a few days earlier. Instead, parsley roots have been harvested. On this day 50 kg of parsley roots were gleaned and taken home.

After conducting these different gleaning actions, the round table with different stakeholders took place. Results were presented and arose problems and challenges were discussed. When talking with farmers - not only during the round table but also during whole project phase - it came out that for most of them it is more important to find solutions for the already harvested and stored products than for the products still remaining on the field.

The main reason for non-sales of the products to food retailers is indicated by producers and suppliers with their declaration that these products do not meet the food retailer's criteria. Solutions for these stocks should have been found.

Table 1: SWOT Analysis - Gleaning

SWOT	STRENGTHS (internal)	WEAKNESSES (internal)
OPPORTUNITIES (external)	Use of fresh products directly from the field Raise appreciation of all field fruits, regardless of shape and optic	Financial aspects in establishment of sustainable gleaning network To find possible buyers of gleaned products with regard to flexibility
THREATS (external)	Logistical aspects in terms of time, equipment, transport, buyers Consider legal constraints	Financial aspects in establishment of sustainable gleaning network



1.2..2. Agriculture and gastronomy cooperation

During the already mentioned round-table meeting with different stakeholders some possible solutions were identified. The most preferred solution also due to legal aspects is agriculture - gastronomy collaboration, although the logistical aspects are the most critical and still not quite as settled burdens.

During the gleaning action at the organic farm a certain part of the products was already delivered to a group of organic restaurants. These restaurants are organised in an association which gives them the possibility to deal with a certain amount of beforehand not known goods, in not known quality. The restaurants are also flexible in their menu planning and had the possibility to store the products in different locations. This flexibility is the big advantage compared to supermarkets and become very important for using gleaned products.

It could be easier finding restaurants for the farmer stock products, as the kind and amount of products which cannot be sold regularly should be better calculable. Nevertheless, the goods must be transported from farmer to restaurant. The idea of the stakeholders at the round table was to find a distribution network or centre for the kind of products. At this centre the farmers could bring their products or the products are collected by the operator of the centre. The restaurants can go directly to the centre and pick up the goods or can order the operator to deliver the goods.

These led to contact the kind of companies already dealing in the field; the wholesalers.

1.2..3. Wholesale cooperation

Wholesaling represents the essential link between producers and retailers or the catering trade. Due to the existing infrastructure (logistics, cooling, storage, etc.) and the existing network, wholesalers can effectively contribute to the further marketing of class B goods. In order to highlight the possibilities and obstacles of potential cooperation, experts from the wholesale trade in food were interviewed and the willingness to market class B goods was investigated.

> *Description and selection of experts*

In April and May 2018 interviews were held with various wholesalers and experts. In the area of wholesale, both conventional and organic traders were taken into account. Another distinguishing criterion was the supply of resale or catering or a combination of both. Some of the wholesalers also deliver directly to the consumers; either in form of a fruit and vegetable box or as a pick-up market.

ADAMAH BioHof was founded in 1997 as an agricultural family business. As one of the organic pioneers, the Zoubek family concentrated on direct distribution of their products in an organic box. In addition to the self-produced products, the range is supplemented by products from other producers and wholesalers. In the meantime, milk and meat products, as well as bread, are being sold via the box's direct delivery.

Unfried Obst & Gemüse HandelsgsbH Krems is one of the largest regional retailers for restaurants and hotels in Lower Austria, Vienna and Burgenland. The wholesaler also supplies commercial kitchens in public institutions and health care facilities.



BerSta Naturkost-Großhandel is a wholesale company, which originated from a marketing cooperative. The primary focus of the company is the marketing of organic products from the Waldviertel region. This results in a particularly close contact with the producers.

Biogast GesmbH is the largest Austrian specialist wholesaler of controlled organic food for gastronomy and organic trade.

Biomartin OG deals with organically produced foods. In addition to the delivery to resellers and restaurants, the company operates a pick-up market for end customers and several market stalls.

Achleitner Großhandel trades exclusively in organic fruits and vegetables. The company sees itself as a hub between producers and customers. In addition to its own farm products, the company sources products from other organic farms, primarily from the region. The range is supplemented by products from the southern countries. The company specializes in supplying the fruit and vegetable wholesalers, marketers of organic boxes and other major customers. In addition, a separate organic box is delivered to end customers and the business operates a pick-up market.

Biohof Mogg was a regional producer of vegetable boxes. Due to rising demand, business moved away from agriculture to wholesale. To counteract this, agricultural production was switched to CSA.

Kewin Comploi, Global 2000 was co-responsible for the implementation of REWE's Pro-Planet certification. As an interface between the trade and the producer, regular meetings of the advisory board discussed the criteria and the difficulties associated with certification and the requirements of trade.

> *Status Quo*

The marketing of production surpluses or optically flawed products requires a functioning communication and infrastructure between producers and consumers. The wholesaler has both: contacts to the producers and consumers on the one hand, and on the other hand there is an already functioning and optimized logistics and storage infrastructure available. It is therefore reasonable to consider the wholesale trade as a hub for the marketing of corresponding products. In order to explore the possibilities and readiness for potential cooperation, expert interviews were conducted with those representatives. The focus was on questions concerning existing measures in the area of marketing surpluses or class B products, dealing with returns and non-marketable products, customer expectations and the potential willingness to participate in pilot projects for the marketing of these products.

> *Dealing with returns and non-marketable products*

Even in wholesale it happens again and again that goods are not accepted and returned by the resellers or restaurateurs. This has various causes: from optical weaknesses to the lack of maturity. Returns are rather rare in wholesale since the products are subjected to a strict quality control as soon as they are delivered to the wholesaler. In conventional areas, returns and products that have failed quality control are often returned to the producer. Especially with customers of very large quantities (chain store), whole pallets are sometimes returned to the



producer. The wholesalers are less likely to resort to such measures with certified organic products. Here, the defective goods may be sorted by hand and the rejects are composted. On the one hand, this can be explained by the lower product availability in the biologically certified area, and on the other hand by the generally higher appreciation of the end consumer's products. Since there is no distinction between A and B goods in the field of certified organic products, optical characteristics are much less likely to be used in quality control.

Above all, the wholesale trade in organically certified foods has particularly close contacts with the producers. This results in a particularly favourable situation, in order to convey production surpluses quickly and successfully to restaurants and resellers. In the form of e.g. "Flash News" allows for extra-ordinary orders for perishables or production surpluses at BerSta. The wholesale does not have an overview of the actual quantities, which are considered to be unsaleable by the producers. Ab-Hof markets are a special feature: many producers market products that would not be further sold by wholesalers, directly to end consumers.

> *Potential and limits of marketing excess production and class B products*

The discussions with the experts have shown not only a high potential but also a certain willingness to market the B-commodity and production surpluses. Above all, companies that attach great importance to close cooperation and communication with the suppliers show a significantly greater willingness to continue to sell less attractive goods - especially to the catering trade. The distribution of goods to resellers is generally considered to be somewhat more difficult as consumers place more emphasis on the visual characteristics of the products in their trade. The expectation of the customers is seen here as an argument against the marketing of these products. By contrast, companies like Achleitner are already trying to work by also supplying B-goods in a vegetable box in direct sales, but at a lower price. Essential for the marketing of these products is the information and targeted communication to the consumers.

Both conventional and organic wholesaling see potential in the marketing of production surpluses or class B products in facilities with strong price pressure. Commercial kitchens, communal catering facilities, social and health facilities (hospitals, senior homes or prisons) are mentioned as potential stakeholders. One obstacle to the willingness to process these products is, above all, the poor predictability and inadequate quantity availability. Rather smaller catering establishments have the necessary flexibility in the menu card design.

The wholesalers see a potentially interesting marketing field in the field of "ready-to-eat products" for the catering trade. The growing interest of the catering industry in mature and immediately serviceable products is increasing, with storage and logistics being among the challenges.

One major obstacle to marketing visually less attractive products or production surpluses is the pricing issue. Wholesalers suspect a decline in other products in favour of lower price goods. Especially for gastronomy is a cheap price for products that are processed, particularly attractive. On the other hand, a difficult pricing, as the prices are basically low. Thus, it is difficult to buy the class B products from the producer to an at least cost-covering price.



Table 2: SWOT Analysis - Wholesalers

SWOT	STRENGTHS (internal)	WEAKNESSES (internal)
OPPORTUNITIES (external)	Use of fresh products directly from the farm Raise appreciation of all field fruits, regardless of shape and optic	To find possible buyers of second class products with regard to flexibility
THREATS (external)	Displacement of foreign products	Increasing competition between first and second class products Displacement of first class products Poor predictability

> *The role of consumers*

In recent decades, the optical component of the quality standards of fruit and vegetables has become increasingly important. Consumers prefer flawless goods. An abnormal shape, minor outer shell injuries or abnormal size are considered inferior. Especially in the conventional area, the demands on the products are high. The acceptance of class B goods is therefore not given in this area.

Buyers of organic products accept deviations from the norm to a certain extent. Criteria such as freshness, regionality and seasonality are more important to customers than product size and shape. Experiences of Achleitner and Mogg show that the acceptance of class B goods increases if customers receive information in the delivery and enjoy a corresponding price advantage. The highest acceptance of class B products is seen in the target groups of the CSA and the market buyers (or buyers from the yard). These buyer groups place the least emphasis on the visual characteristics of the products.

Out of these findings ADAMAH BioHof initiated another pilot trial.

1.2..4. Agriculture and private person cooperation

Together with ADAMAH BioHof the acceptance of the class B products among the customers buying an organic box on a regular basis was to be explored in the context of the project. Institute of Waste Management together with the management of ADAMAH BioHof developed three possible scenarios:

1. A separate "Misfits" box (often used name for class B products)
2. "Misfits" as an orderable additional offer in the current fruit and vegetable box
3. "Misfits" as an inexpensive replacement or supplement for products in the box with detailed customer information

In the period between March and April 2019, products classified as non-standard should be delivered to a defined customer circle and the acceptance or criticism of the products should be measured with the help of a questionnaire.



In the first variant, specific products not marketable in the common box should be put together in a special box. In this variant it turned out to be difficult that only a small selection of products was available at the planned time slot. Apart from potatoes and carrots no other products were available.

In the second variant, consumers should be able to order B-goods in the online shop. This variant could not be implemented in the given period due to the relatively high technical effort and the small available quantities of deliverable products.

Most likely to be implemented was the third variant, in which the same products would have been replaced by a larger amount of class B products or by the same amount at a cheaper price. This variant would have been feasible with the least logistical and technical commitment. Likewise the possibility would have been given to be able to cautiously approach the consumers even with only two products (potatoes and carrots). However, this option of delivering products that could not otherwise be marketed was rejected in the Customer Advisory Council. The customer representatives saw in the addition of B-products a reduction in quality of organic boxes and rejected them for this reason.

ADAMAH BioHof is now considering for the upcoming season, to create a way of pick-up (from the yard-sale) of the B-products for its customers. Direct delivery to customers will not be considered for economic reasons.

1.2..5. Communication and awareness raising

Through all the implementation actions every single stakeholder mentioned that awareness rising with regard to the quality and shape of farmer goods and communication through the whole range of stakeholders is of the utmost importance.

One reason for non-harvesting and/or non-sales of the products to food retailers is indicated by producers and suppliers with their declaration that these products do not meet the food retailer's criteria. Supermarkets have strict regulations not only in terms of quality but also of shape and size of the products. That requirements result in a certain amount of already harvested but not sellable products at farmer level. Very often it is mentioned that the consumer has the power to change supermarkets requirements, but therefore the consumer must be informed.

Communication along the whole consumer chain, starting with pupils in school through young families up to elderly people has to take place. Also other ways of food shopping in supermarkets should become known to a broader public.

Farmer markets are already introduced but there are different other strategies. Beside food sale these options could close the gap between production and usage of goods respective raise the awareness for the appreciation for food. CSA is an example for a close relation between farmer and consumer. CSA means Community Supported Agriculture and is a kind of solidary agriculture that should ensure the existence of the producers. There is a close cooperation between consumers and farmers. The responsibility for the costs, the risk and the harvest are shared between farmers and consumer. The consumer pre-finances the cultivation and receives a certain part of the harvest all year long, independent from the harvest amount. These could be a lot of food in "good" years, it is less food in "poor" years, but the whole harvest will be used.



Food cooperative is similar structured. Food coops are an association of people and households who self-organized purchase organic products directly from local farms, market gardens, beekeepers and so on. The difference to CSA is that there always will be a gap between supply and demand, although there is certain flexibility.

Communication is always depending on the target group and has to take place in different ways. A way developed during the STREFOWA project is the implementation of a reducefoodwaste tool, where different initiatives dealing with food in the participating countries are shown.

Additionally, a competence network dealing with food and food waste was established.

> ***#reducefoodwaste competence network for food waste prevention and management***

The establishment of the #reducefoodwaste network focused on the prevention and management of food waste. Aim was to create an active platform for networking and exchange of all interested organizations and individuals, and to link the expertise of the private, public and scientific sectors. The goal is to build an international multi-stakeholder platform that also sees itself as a think tank, project incubator and a hub for innovative initiatives. #reducefoodwaste should provide a platform for discussion on current developments in the prevention and management of food waste. The platform aims to identify opportunities for avoiding food waste and present it to its member organizations and individuals as a starting point for joint projects and strategies. Decision-makers should receive valuable input for their work. Specific working groups will develop tailor-made solutions for each link in the entire value chain (production, processing, trade, and consumer) and effectively contribute to food waste prevention across the region by supporting and visualizing best practice examples.

This network will play an important role in terms of communication not only to experts but also to the broad public. Another more concrete action is the conduction of public events.

> ***Public Events***

Public events are a worthy opportunity to reach persons of different target groups at one event. During the project phase the STREFOWA team participated at a lot of public events to spread the information and raise the awareness for the food topic. Events where the findings were presented were for example the Wiener Mistfest, Lange Nacht der Forschung, Genussfestival at Wiener Stadtpark and much more. One of the more particular events in terms of target group was the Hoffest at ADAMAH BioHof.



Figure 4: Public events



> **Hoffest ADAMAH BioHof**

ADAMAH BioHof organise a yearly, two-day lasting courtyard party. During this party, which is itself a well-known public event and well published at different media channels, a big information campaign took place. Aim of the campaign was to inform guests

- on the existence of so called second class food resp.
- on the amount of food remaining on the field after harvesting;
- reasons and possible solutions like gleaning
- organise gleaning event together with interested public

After the Hoffest a lot of media articles were published and the gleaning event with interested people took place (see >).



Figure 5: Hoffest ADAMAH BioHof

1.2..6. Processing plant for stock losses / products

Beside the amount remaining on the field after harvest a respectable amount of food is being lost out of the stock of the farmer. Reasons therefore are the complex and described already in D.T2.1.2. A lot of farmers are even more interested in finding solutions for these stock losses than for the amount remaining on the field.

An astonishing solution that one of our pilot project farmer implemented - Prischink “Die Erdäpflerei” - was the building of a processing hall for primarily potatoes, but also for beetroots and onions.

As mentioned in Deliverable D.T2.1.1 around 20 % of the whole harvest of the conventional farmer and gleaning partner Prischink is not sellable as first class potatoes. Reasons for not meeting the first class respective supermarket quality criteria are the wrong size or shape of the potatoes, some minor defects or damages caused by harvesting machines or insects or other parasites. Of in total 6000 tons yearly harvested potatoes, 1000 to 1200 tons become waste. The edible potatoes are provided to a social supermarket close to the farm, but still the main part was brought to a biogas plant. Due to that high amount of losses the farmer decided to build a processing hall. Following processes could now take place:

- automatically peeling of the potatoes, beetroots and onions
- cutting in different sizes and shapes (fries, wedges...)
- vacuum packaging (no conservatives are added)

- packaging size from 2 - 5 kilogram
- high-temperature pasteurized in an oven operated with woodchip heating
- storage and transport



Fig. 1: Prischink “Die Erdäpferei”

At Prischink “Die Erdäpferei” ONLY those potatoes are processed, which do not meet the supermarket criteria and of those 100 percent. That means instead of bringing 20 percent of the whole harvest to the biogas plant, they are processed and further distributed. Due to the reason that the basic product are second class potatoes, 30 percent of the whole processed potatoes end up for further distribution. Would the basic products be first class potatoes; 50 to 70 percent could be used. The squished unusable rest of the products are brought to the biogas plant.

At this time the processing hall run for half a year and max. 750 kg of potatoes are processed per hour. 250 kg of usable products are produced. In future business will grow. Already now the farmer is buying potatoes from other producers for processing - but ONLY second class potatoes. The aim is to process

- 3000 tons of potatoes per year - to reach 1000 tons of processed potatoes (with the empirical loss of 60 to 70 percent with second class products)
- 170 tons of beetroots per year - to produce 100 tons of processed beetroots (loss of 40 percent)
- 1000 tons of onions per year - to produce 400 tons of processed onions (loss of 30 to 40 percent)

1.3. Problems and other important issues occurred during the PA implementation

Within PA1 it turned out that the implementation of “classical” gleaning activities as known from other countries will not work sufficiently in Austria/Vienna. The main problem is connected with the logistical issues:

- Farmers don` t want to let external people going on the field - so a fixed contact person for the farmers would be obligatory, who organises the farmers, transport, volunteers, buyers



- The exact date of harvest is not known very long in advance and gleaning must happen short after harvest; so a quick-reaction gleaning team should permanently be kept on standby
- Transport of persons, equipment and further on gleaned products to and back from farm
- Buyers must be flexible in overtaking, storing and processing different amounts of gleaned goods

During conducting the different gleaning actions, it turned out that the priority of farmers is not on the products remaining on the field but on their second class stock goods. Farmers already invested much more effort and money in the stock goods and therefore would like to solutions for these kind of goods. Additionally, after different gleaning actions conducted with volunteer's students, social organisation and also as single event it turned out that at this time this kind of gleaning action is only possible with a higher financial input in order to establish a network with a fixed contact person, who is responsible for the organisation of the above mentioned problems.

All these finding led to a change of the focus.

- Single gleaning events still will be organised as awareness building or awareness raising instrument.
- Gleaning actions done by social organisation with already established group of volunteers and buyers (social supermarket) also will be done.
- Contacts between farmers and wholesalers, who are willing to deal with second class products, are made.
- Contacts between farmers and restaurants, who are able to deal with second class products are done
- Awareness raising for the acceptance of so called class B products
- New marketing channels between producer and consumers in terms of class B products

1.4. Results and target groups reached

TARGET GROUPS	QUANTIFICATION
Local public authority	3 (LK Wien, MA22, MA59)
Regional public authority	2 (VKS, AGES)
Interest groups including NGOs	4 (ÖÖl, Hilfswerk, Tafel, Zero Waste Austria)
Education/training centre and school	-
Large enterprises	-
SME	12 (Adamah, Prischink, unversch., delibluem, Erdbeerbauer, Gurkenprinz, 5 zwischenhändler, CSA Moog)



General public

Approx. 150

<i>Pilot Action</i>	<i>Amount of waste avoided per PA</i>
PA1	~ 1700 kg by gleaning activities 250 t by processing plant (first 6 month)

During PA1 different stakeholder were contacted. In the beginning mainly farmers were contacted in order to find partners for gleaning. Further on volunteers for gleaning were searched, mostly students but also via social media and other press contacts. Customers for the gleaned products were recognised. Finally, a selected number of stakeholders were invited to the Round Table meeting in order to spread the results and findings and find possible solutions. Out of these possible solutions other stakeholders were identified and contacted, for example wholesalers. Along the whole pilot action awareness building and raising measures took place. Different events took place, where the amount of contacted persons was calculated by newsletter or in particular gleaning sign-up sheets.

1.5. Sustainability and transferability of pilot actions on optimal solutions on Food Waste Prevention in Primary Production

All pilot activities will be suitable for implementation in other regions as they are focused on the supply chain and not on specific circumstances. In terms of gleaning networks are already existing in some countries, but in all countries they are connected to or part of a bigger institution; at least there is a financial background which ensure personnel and technical equipment. Therefore, the financial security is one big aspect for the establishment of a network. Additionally, a lot of volunteer's support is necessary from the very beginning and for the sustainability of the action.

Support with the organisation of single gleaning events as well for gleaning with social enterprise were done; checklist for conducting gleaning actions was provided and can be used for initiating gleaning actions in different countries.

In terms of stock goods cooperation with wholesalers show a high potential, mainly with wholesalers delivering restaurants. Contact between wholesaler and farmer was established.

Awareness building and rising in terms of mind changing with regard to appreciation of food in total and shape and optic in particular will be an ongoing process supported by the #reducefoodwaste competence network. The network will be active in a transnational context; different information in terms of food waste management will be available.



2. Food Waste Prevention in Primary Production: PA2 (ATM)

2.1. Feasibility Study overview

The aim of the Pilot Action 2 is to define a marketing channel to sell perfect produce from primary production, which is not sold but wasted until now. Through qualitative interviews (24) and national / international research the current situation in Tyrol was surveyed such as:

- structure and organisation of the businesses (logistic, ordering system, storage, etc.)
- structure of sector
- amounts and potentials (sector 1: discard, sector 2-4: purchase)
- legal and internal requirements
- already existing or implemented ideas to optimize aspects of food waste
- interest to be involved in Pilot Action 2
 - potentials & difficulties in the company/organisation

To capture the wide range of possible stakeholder from the sectors “primary production, food processing, retail, food service” interviewees from small to big businesses, representing the variety of each sector were interviewed.

Based on these interviews 9 specific ideas could be defined and summarized as possibilities of sale. Besides the awareness on this issue was clearly shown as well as the willingness of all sectors to take action and use these vegetables.

2.2. Implementation of pilot actions

Based on the results of the feasibility study the described ideas were rated. The ranking was discussed with stakeholders and one main idea was identified to realize at first:

Produce from different regional farmers is gathered at one assortment list. An additionally description of each produce is included, e.g. size. This list will be weekly updated and send via email to all cooperation partners interested to buy such produce. The distribution containing sending the emails, logistic, billing is covered by a regional greengrocer, who expends his product list by our vegetables.

To start the practical implementation of the pilot action 2 the coordination of sales was in the main focus. We needed to find a logistic system that meets most of the requests. We found a partner in the local greengrocer “Giner Agrarprodukte e.U.” Together we developed a proposal on a sales system which was discussed in a workshop with all involved stakeholders (chefs, farmers, greengrocer). After adjustment of the proposal the first assortment list was created and was sent by mail to all interested buyers - the first selling-season was introduced. From now on the assortment list was weekly created by ATM, it was sent by email, the orders were



coordinated and delivered by the greengrocer and the produce was processed in various kitchens.

Karakter

ER NTE



Wir haben Charakter und nutzen die gesamte Ernte.

SORTIMENTSLISTE

KW 40

Bezeichnung	Beschreibung	Produzent	Herkunft	Anbau	Preis €	Abnahmemenge
KE Zucchini	> 20 cm Länge	Christof Appler	Tirol	konv.	0,95 / kg	
KE Hokkaido-Kürbis	< 10 cm	Christof Appler	Tirol	konv.	1,05 / kg	
KE Karotten	> 3 cm Durchmesser	Walter Plank	Tirol	konv.	0,65 / kg	
KE Karotten gelb	> 4 cm Durchmesser	Walter Plank	Tirol	konv.	1,00 / kg	
KE Brokkoli	Überproduktion	Walter Plank	Tirol	konv.	1,85 / kg	
KE Karfiol	Überproduktion	Walter Plank	Tirol	konv.	1,55 / ST	
KE Paprika spitz	Überproduktion	Walter Plank	Tirol	konv.	1,55 / ST	
KE Kartoffel (Frühkartoffel)	Schalenfehler, mechanische Verletzung	Romed Giner	Tirol	konv.	0,60 / kg	
KE Weißkraut	< 500g, > 2 kg	Josef Lechner	Tirol	konv.	0,95 / kg	
KE Romanischer Salat	Überproduktion	Josef Lechner	Tirol	konv.	0,80 / ST	
KE Stangensellerie	> 40 cm Länge	Josef Lechner	Tirol	konv.	1,15 / kg	
KE Radicchio	> 500 g	Josef Lechner	Tirol	konv.	0,80 / kg	
KE Röhren roh	> 1 kg	Josef Lechner	Tirol	konv.	0,74 / kg	
KE Gurke	< 180g oder 12 cm, unförmig	Josef Lechner	Tirol	konv.	1,05 / kg	
KE schwarzer Rettich	> 700g	Josef Lechner	Tirol	konv.	0,85 / kg	
KE Zwiebel	keine Schale, < 4,5 cm	Christoph Bliem	Tirol	konv.	0,85 / kg	
KE Knoblauch	bräunliche Schalenfarbe, einzelne Zehen	Georg Pfurtscheller	Tirol	konv.	3,35 / kg	
BIO - ÜBERGEMÜSE						
KE Bio Champignon braun	Hut geöffnet	Cornelia Plank	Tirol	bio	4,15 / kg	2 kg
KE Bio Hokkaido-Kürbis	kleine Verletzungen der Schale, < 600 g	Maria Pfurtscheller	Tirol	bio	0,85 / kg	
KE Bio Karotten	unförmig, Übergröße, Bruch	Maria Pfurtscheller	Tirol	bio	1,05 / kg	

KARAKTER ERNTE

ist heimisch produziertes, geschmacklich einwandfreies Gemüse (wenn vorhanden auch Obst), das nicht den Marktanforderungen in Form, Farbe, Größe etc. entspricht oder kurzfristig im Überschuss verfügbar ist und deswegen ungenutzt bleibt.

BESTELLUNG & LIEFERUNG

Bestellung: 2x pro Woche: Mo & Do bis 15:00 Uhr, telefonisch, per Mail oder Fax

Lieferung: 2x pro Woche frei Haus; Di (Bestellung bis Mo) & Fr (Bestellung bis Do)

Mindestbestellmenge: gesamt 30 kg

Lieferraum: Raum Seefeld-Leutasch-Telfs über Innsbruck bis Kufstein, Kirchbichl und Kitzbühel

Gemüselieferung:

Giner Agrarprodukte e.U.

Tel 05223 492843 | Fax DW 30

gastro@gemuese-giner.at

weitere Informationen zur Initiative:

DI Claudia Sacher +43 (0) 5242 / 62 400 0 sacher@atm.or.at www.karakter-ernte.at



Figure 6: Assortment list “Karakter Ernte”

During the first season (2017/2018) the system and the assortment list was adapted due to various feedback rounds. Lots of new potential kitchens were contacted. The sale took place from September 2017 to beginning of April 2018. During spring all stock goods were sold and the new harvesting season was not started. Therefore the sale was paused and the springtime 2018 was used to rework the pilot action and prepare the second sales season. The network on farmers, restaurants and other possible buyers was strengthened by personal contact and feedback rounds. The system was adapted based on oral evaluation. To perform a better public appearance a creative competition was done to design an own corporate design & define a (positive connoted) name of the produces >> “Karakter Ernte”.



Figure 7: Logo and icon “Karakter Ernte”

In July 2018 we reopened the new sales season by an official press event of the “Initiative Karakter Ernte”. This kick-off was supported by different partners such as chamber of agriculture, chamber of economics and State of Tyrol and was accompanied by various articles and reports in media, Radio and TV.



Figure 8: Different pictures of the press event

The second sales season was characterized by regular support and telephone or personal contact of the cooperation partners. To strengthen the cooperation and initiative the external communication was in our focus. Data was special designed for mainly digital use. Photos, logos and text modules were prepared to be used for website, newsletters, social media, menus, etc. The cooperation partners could use them in their communication, to show their involvement in the initiative. Besides we organised roadshows and attended to different events to present the pilot action to the public.

New Ideas: Beside the running sale other ideas were pursued such as designing new products produced with “Karakter Ernte”. A cooperation between two companies is already established - a social organisation (Lebenshilfe) and a cooperative (feld:schafft eGen). They designed a product, did a test production in January 2019 and a tasting on the street accompanied by a survey. Now they are in preparation of the real production start in autumn 2019 and are defining their sales channel(s).



2.3. Problems and other important issues occurred during the PA implementation

1. The legal regulations for vegetables. Even if specific marketing standards are minimized and most vegetables are covered by the general marketing standards this one is very specific for some vegetables, such as carrots: A specific fraction amount of max. 10% is allowed. Carrots break easily during handling which is no hygienic or health problem for consumers. The total part sorted out contains mainly misshaped, broken or spoiled carrots. This means it needs to be resorted to separate the good and saleable carrots from the spoiled ones. But another sorting needs to handle the broken carrots in a specific way, as maximum 10% in total are allowed. To do so, the sorting need to be done by hand. This is unrealistic due to the low price which can't cover the staff costs. That's why we used for example just carrots which are too big.

This issue occurs for different vegetables and each vegetable has to be treated differently to meet the legal regulation.

2. The existing prejudice against the lower quality and additional workload of "misfits". This prejudice can be easily met by showing the vegetable in real or by motivating for one trial using the vegetables. But still, the pilot action has to meet and change old routine and opinions very carefully and sensitive to be successful. This needs time and lot of effort.
3. Insecurity because of false knowledge: People are insecure to use "Karakter Ernte" as they think it is forbidden to sell and use such produce. This false knowledge, which refers to the marketing standards, has to be faced during the pilot action as well.
4. Focus on bigger farms. The system the pilot action 2 is running with is based on regularity in terms of available amounts & variety over a longer time. This can be best complied by bigger farmers. Hence it is not easy to include smaller farmers in the pilot action 2 so far. That's why other ideas were followed and developed as well to not exclude small farmers from the "Initiative Karakter Ernte".

2.4. Results and target groups reached

TARGET GROUPS	QUANTIFICATION
Local public authority	1
Regional public authority	1
Interest groups including NGOs	10
Education/training centre and school (incl. higher education and research)	10
Large enterprises	11
SME	40



General public

800

Sectoral agency 7 (10)

<i>Pilot Action</i>	<i>Amount of waste avoided per PA</i>
PA2	6 tons

PA2: Within the two seasons of practical implementation of the pilot action 2 about 6 tons of perfect produces was sold and used. The variety of different companies involved shows how widely spread the awareness on the issue of not used perfect food is. It points out that not a specific partner is needed. Each farmer, each kitchen, each chef can take part in the initiative and can take action in using this perfect vegetables. Besides it is demonstrated that the quality and amount available meets all necessary requirements. Not a single kitchen is excluded. Even hospitals take part in the pilot action!

Beside this practical implementation the pilot action could raise awareness on the problem of food waste in the primary production. Representatives from different institutions (sectoral agencies, chamber of agriculture, chamber of economics, etc.) and NGOs, schools and educational centres included this issue in their field of work.

2.5. Sustainability and transferability of pilot actions on optimal solutions on Food Waste Prevention in Primary Production

PA2: The Pilot action 2 uses existing structures which were adapted and extended to specific demands. As we don't have to maintain our own system, it is less work- and cost-intensive to run the "Initiative Karakter Ernte". This approach can be easily done in other regions as well.

We started with a bigger approach, we use an existing sales channel of a greengrocer, but the sale can happen also in other ways as well. Every farmer can offer "Karakter Ernte" within his marketing channels; every chef can ask his supplier for "Karakter Ernte". The important fact of the pilot action 2 is to not create new structures and infrastructure, but to adapt the existing ones and support them by communication and taking a step ahead against the existing prejudice.

Even the kind of communication can be copied in every region.

To build up broad and sustainable basis representatives of sectoral agencies (chamber of agriculture, chamber of economics) and the State of Tyrol were involved in all important steps of the development, the evaluation and the publishing of the pilot action.