Summary Report - Oct 21, 2012
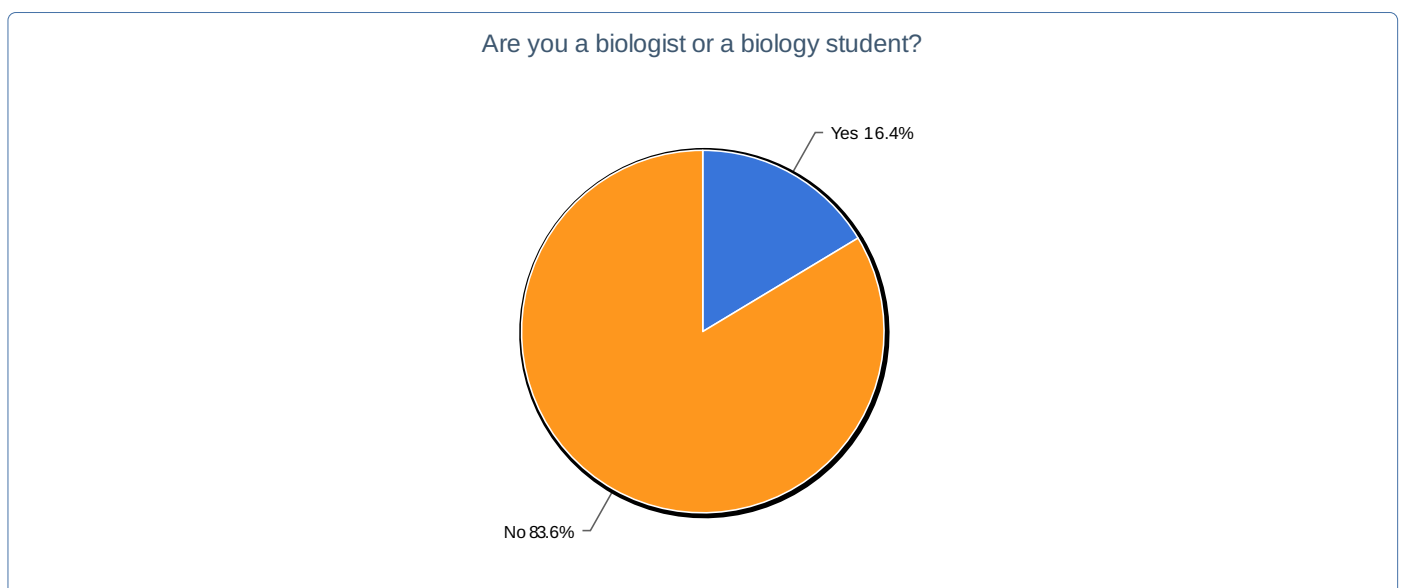
Survey: Food Warden - iGEM Groningen 2012

How old are you?

> 40 years old 13.3%
<16 years old 0.6%
26 - 40 years old 27.8%
16 - 25 years old 58.3%
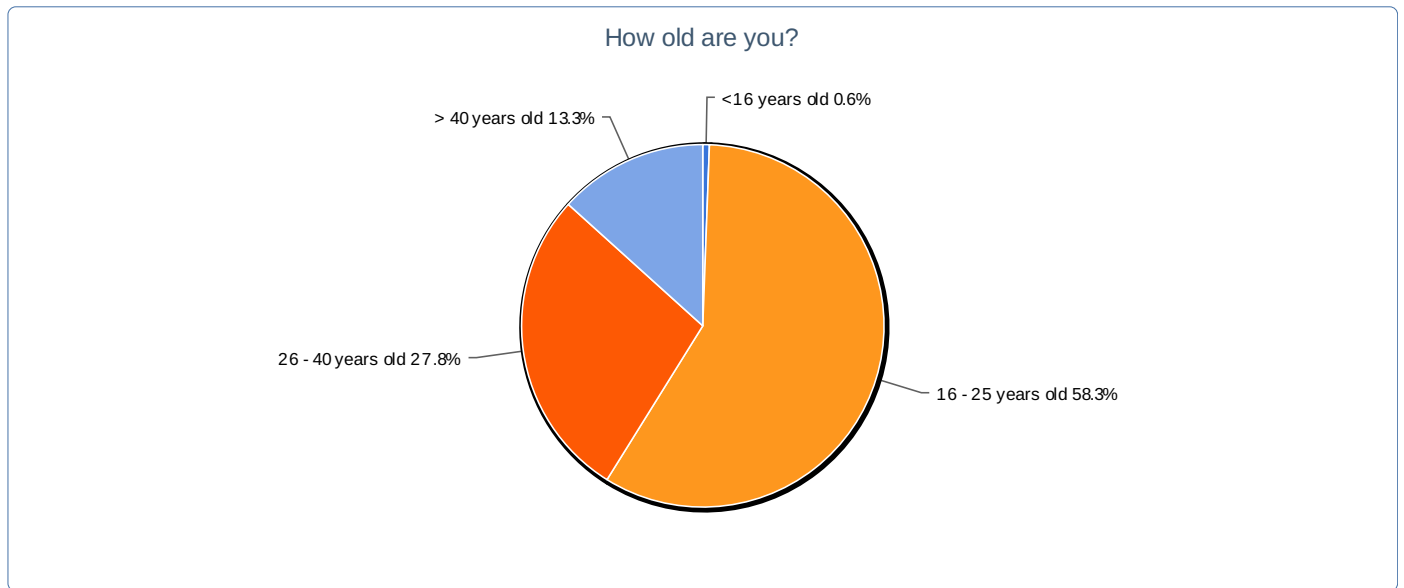
1. How old are you?

Value	Count	Percent %
<16 years old	2	0.6%
16 - 25 years old	197	58.3%
26 - 40 years old	94	27.8%
> 40 years old	45	13.3%

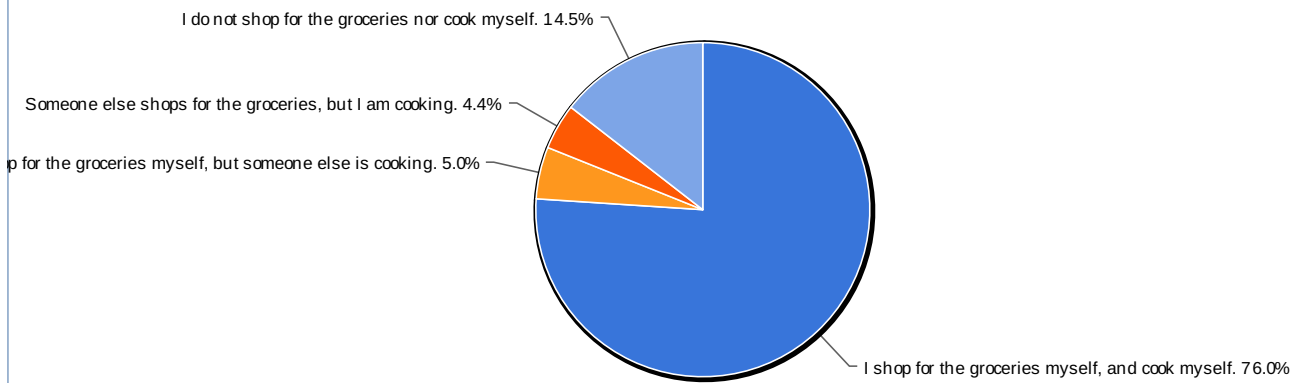| Statistics	
Total Responses	338
Sum	5,596.0
Avg.	19.2
StdDev	4.7
Max	26.0

Are you a biologist or a biology student?

Yes 16.4%
No 83.6%

2. Are you a biologist or a biology student?

Value	Count	Percent %
Yes	28	16.4%
No	143	83.6%

Statistics	
Total Responses	171

In your daily life, do you shop for the groceries and cook yourself? Choose the one that is most typical for you.

I do not shop for the groceries nor cook myself. 14.5%

Someone else shops for the groceries, but I am cooking. 4.4%

p for the groceries myself, but someone else is cooking. 5.0%

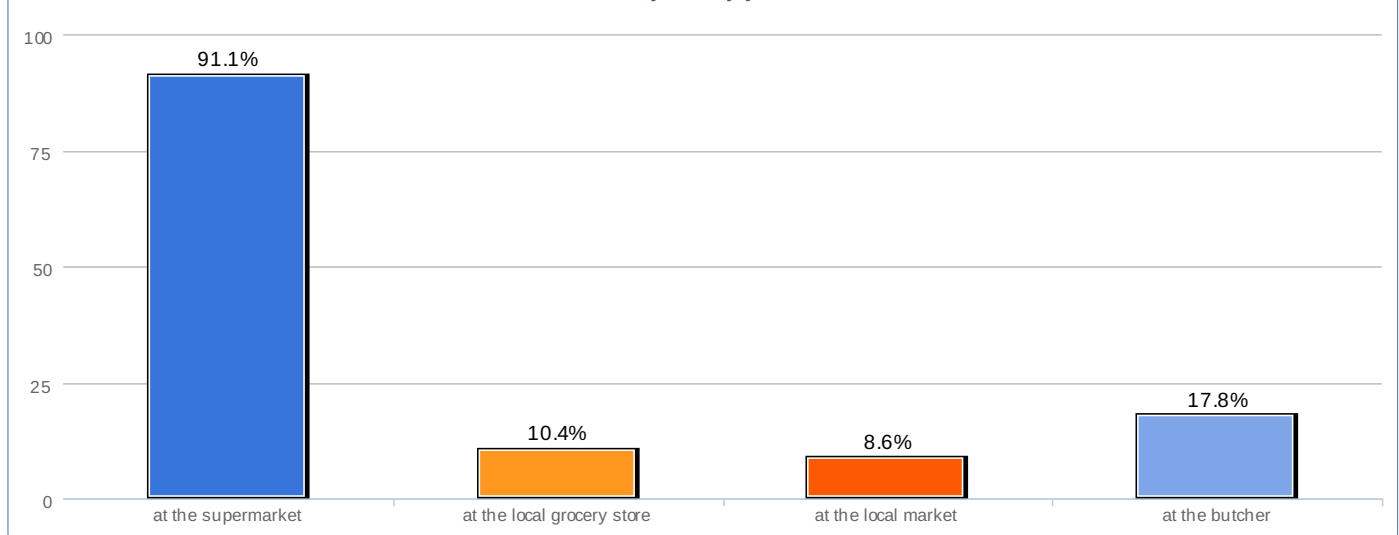I shop for the groceries myself, and cook myself. 76.0%

3. In your daily life, do you shop for the groceries and cook yourself? Choose the one that is most typical for you.

Value	Count	Percent %
I shop for the groceries myself, and cook myself.	257	76.0%
I shop for the groceries myself, but someone else is cooking.	17	5.0%
Someone else shops for the groceries, but I am cooking.	15	4.4%
I do not shop for the groceries nor cook myself.	49	14.5%

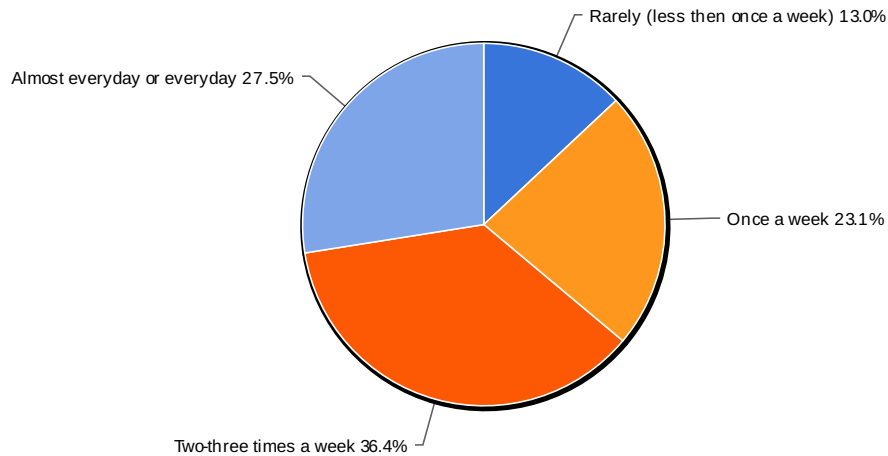| Statistics	
Total Responses	338

Where do you buy your meat?

91.1% at the supermarket
10.4% at the local grocery store
8.6% at the local market
17.8% at the butcher

4. Where do you buy your meat?

Value	Count	Percent %
at the supermarket	308	91.1%
at the local grocery store	35	10.4%
at the local market	29	8.6%
at the butcher	60	17.8%

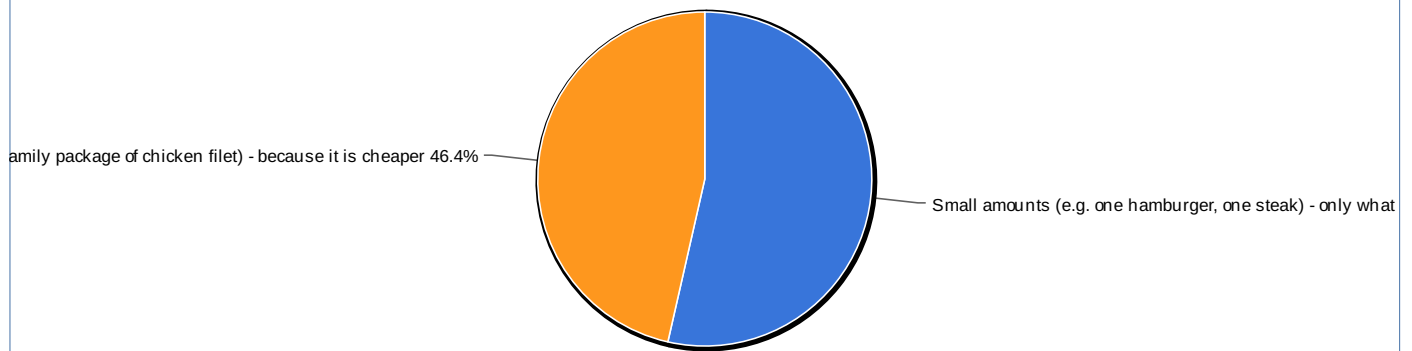| Statistics	
Total Responses	338

How often do you buy meat?

Rarely (less then once a week) 13.0%

Almost everyday or everyday 27.5%

Once a week 23.1%

Two-three times a week 36.4%

5. How often do you buy meat?

Value	Count	Percent %
Rarely (less then once a week)	44	13.0%
Once a week	78	23.1%
Two-three times a week	123	36.4%
Almost everyday or everyday	93	27.5%

Statistics	
Total Responses	338

Do you buy your food products in small, or bigger amounts? Choose the answer that is more typical for you.

amily package of chicken filet) - because it is cheaper 46.4%

Small amounts (e.g. one hamburger, one steak) - only what

6. Do you buy your food products in small, or bigger amounts? Choose the answer that is more typical for you.

Value	Count	Percent %
Small amounts (e.g. one hamburger, one steak) - only what I know I need, even if it is more expensive	181	53.6%
Bigger amounts (e.g. a family package of chicken filet) - because it is cheaper	157	46.5%

Statistics	
Total Responses	338

Do you think that 'Best before' dates are an accurate measure of food edibility?

Yes 39.6%

No 60.4%
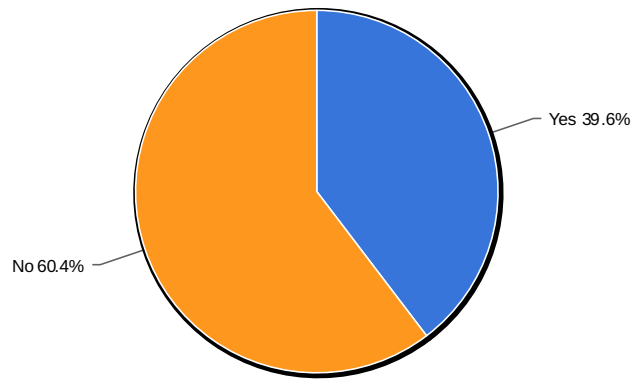
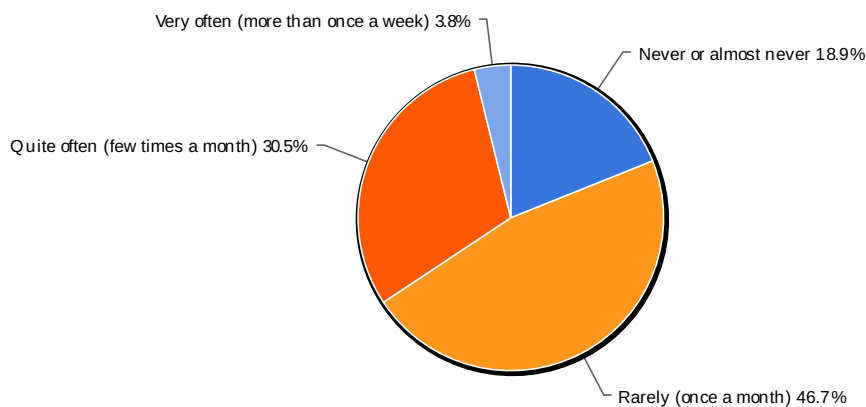**7. Do you think that 'Best before' dates are an accurate measure of food edibility?**

Value	Count	Percent %
Yes	134	39.6%
No	204	60.4%

Statistics	
Total Responses	338

Do you ever throw food away because you bought too much, and you are not sure if it is good to eat any more? Please try to estimate on the basis of the last half a year.

Very often (more than once a week) 3.8%

Never or almost never 18.9%

Quite often (few times a month) 30.5%

Rarely (once a month) 46.7%

8. Do you ever throw food away because you bought too much, and you are not sure if it is good to eat any more? Please try to estimate on the basis of the last half a year.

Value	Count	Percent %
Never or almost never	64	18.9%
Rarely (once a month)	158	46.8%
Quite often (few times a month)	103	30.5%
Very often (more than once a week)	13	3.9%
I'd rather not say	0	0.0%

Statistics	
Total Responses	338

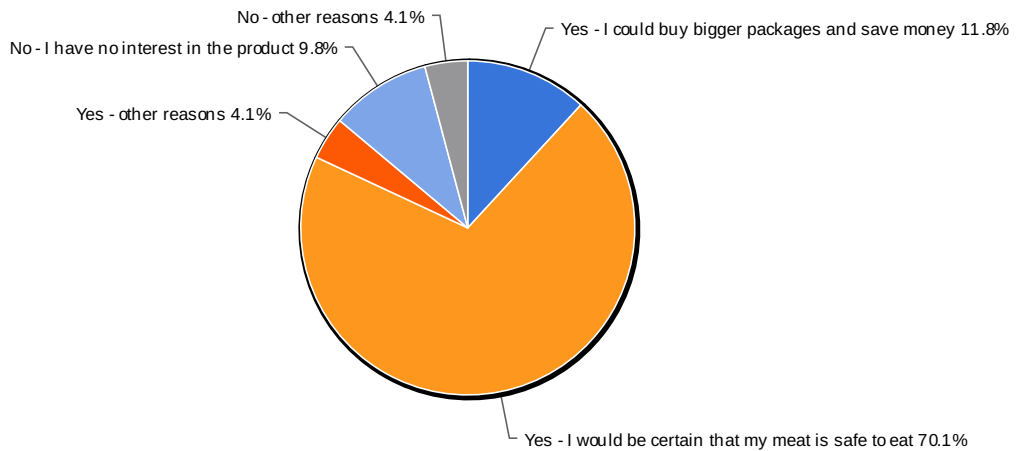## Have you suffered from food poisoning within the last year?

Yes 12.2%

No 87.8%
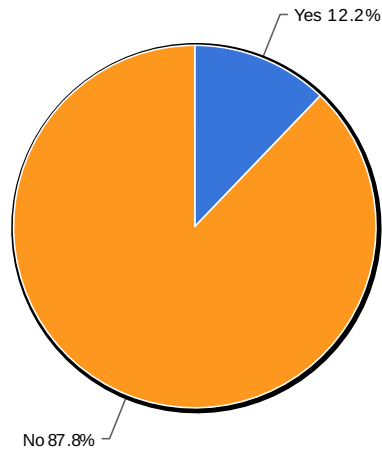
9. Have you suffered from food poisoning within the last year?

Value	Count	Percent %
Yes	41	12.2%
No	296	87.8%

Statistics	
Total Responses	337

Would you like to use a product like the Food Warden sticker that indicates whether the meat is still good to eat or not?

No - other reasons 4.1%

No - I have no interest in the product 9.8%

Yes - other reasons 4.1%

Yes - I could buy bigger packages and save money 11.8%

Yes - I would be certain that my meat is safe to eat 70.1%

11. Would you like to use a product like the Food Warden sticker that indicates whether the meat is still good to eat or not?

Value	Count	Percent %
Yes - I could buy bigger packages and save money	40	11.8%
Yes - I would be certain that my meat is safe to eat	237	70.1%
Yes - other reasons	14	4.1%
No - I have no interest in the product	33	9.8%
No - other reasons	14	4.1%

| Statistics	
Total Responses	338

If you chose "other", could you please present your reasons in the box below:

Count	Response
1	I believe every piece of packaging containing meat should be equipped with this sticker.

1	I buy large portions of meat and what I do not use on the first day I freeze for later use.
1	I could buy bigger packages, and I would be certain that it would be safe to eat.
1	I could probably check frozen meet after unfeezing it. I'm pretty often unsure about it.
1	I do not trust it
1	I like the idea of trying to bring down the amount of food wasted to a minimum.
1	My butcher is very, very ssave! !
1	People already don't think about what they do and this is not helping them think more often.
1	Save money, best before date expired but meat is still good.
1	The food warden sticker is an supplement to your own opinion.
1	could be freshness indicator
1	the only products I end up throwing out aren't meat products
1	to see how it works
1	This could possibly reduce the amount of waste in supermarkets, where anything past its expiry date has to be thrown away.
1	I use my own eyes to see if the food is still good, besides, I don't eat raw flesh. And incorporating one of these stickers into the packages will give the retail a reason to higher the price of the meat.
1	it find it very regretting if i have to trough away meat. so if this product prevent me for doing so i would be very willing to use it!
1	I'm buying stuff smart and put the meat i don't eat shortly in the freezer. "best befor" are a good indicator, but in the freezer it's rotting very slow, so I don't look at the "best befor" date.
1	I will know by myself when meat is rotten by colour change, smell or gas formation (bulging plastic)
1	It would prevent food waste in supermarkets, because they are not allowed to sell after the date on the package has past. With the sticker you would only throw away food that is actually rotten. In home, food goes into the freezer and can be kept for long times, and we already dont look at dates on packages. So there the need for the sticker is less important for us.
1	Interested in how it works, but don't know if I will trust it more than the "best before" date.
1	I use a freezer. If I bought too much meat or it is about to expire I put it in the freezer. Sometimes only for one day to keep it fresh.
1	When I buy meat in bigger packages I put the meat in my freezer and I defrost it when I need/use it. That way I think my product stays fresh and there is no need for me to use the Food Warden
1	Misschien leuk om te kopen om een keer uit te proberen. Ik zou het wel leuk vinden als het het product niet duurder maakt, dan lijkt het mij handig.
1	I do not trus that the bacteria are safe. They do no harm to me, but can it be guaranteed they do not contamine the gene pool of the orignal species?
1	Usually I do freeze my meat, if I don't use it immediately. I might use your product, if it was cheap and I didn't have a freezer at my disposal. Still I believe it is a very useful product to reeducate those, who believe best before dates are accurate. I wonder if the industry would be willing to adopt such a measure though, as best before dates are a not to distant cousin of the so called planned obsolescence.
1	I would use it as an extra indication, but still, even if I was using this sticker I would judge myself if the food is still ok.
1	I am confident I can judge wether food is still good to eat or not, just by smelling and looking at it, and using my common sense.

How much would you be willing to pay extra for your meat if it had the Food Warden sticker supplied with it?

>30 eurocents 3.0%

16-30 eurocents 15.1%

Nothing - I would only use it if it was free 31.4%
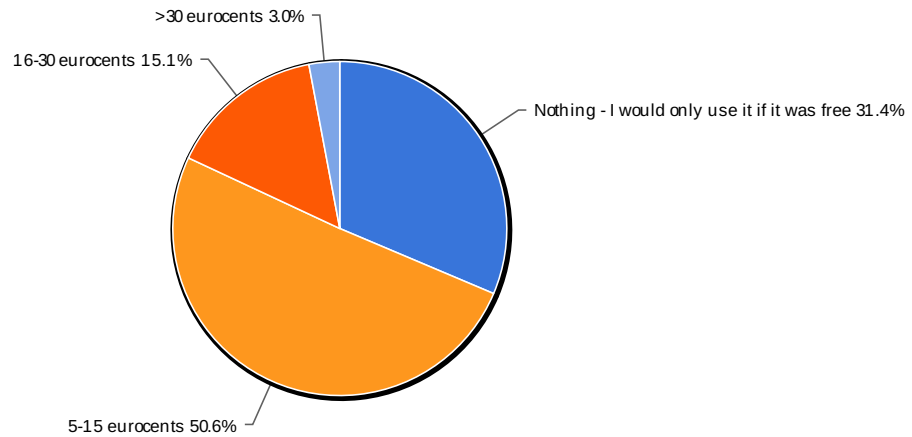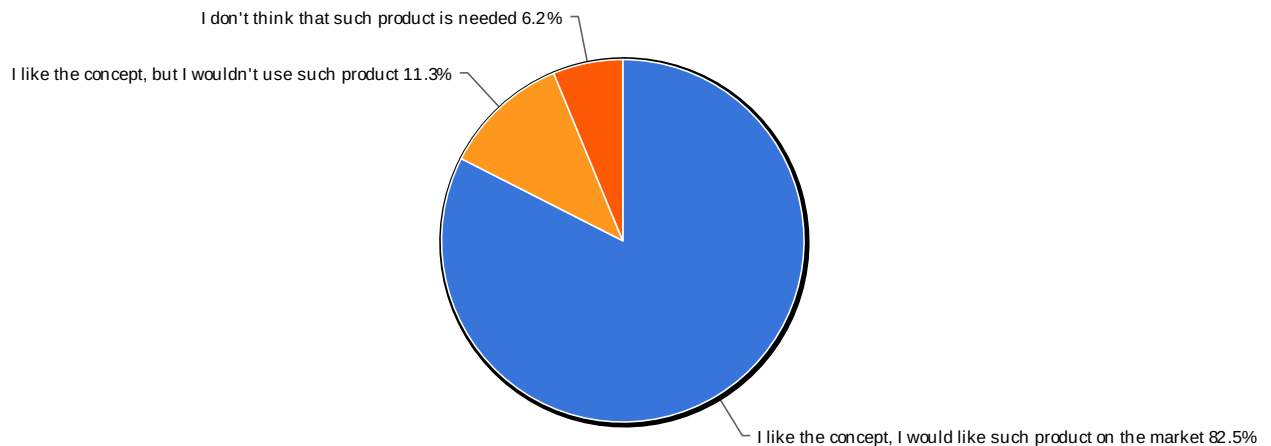
5-15 eurocents 50.6%

12. How much would you be willing to pay extra for your meat if it had the Food Warden sticker supplied with it?

Value	Count	Percent %
Nothing - I would only use it if it was free	106	31.4%
5-15 eurocents	171	50.6%
16-30 eurocents	51	15.1%
>30 eurocents	10	3.0%

Statistics	
Total Responses	338
Sum	1,671.0
Avg.	7.5
StdDev	4.6
Max	16.0

In general, what do you think about the Food Warden system?

I don't think that such product is needed 6.2%

I like the concept, but I wouldn't use such product 11.3%

I like the concept, I would like such product on the market 82.5%

13. In general, what do you think about the Food Warden system?

Value	Count	Percent %
I like the concept, I would like such product on the market	278	82.5%
I like the concept, but I wouldn't use such product	38	11.3%
I don't think that such product is needed	21	6.2%

Statistics	
Total Responses	337

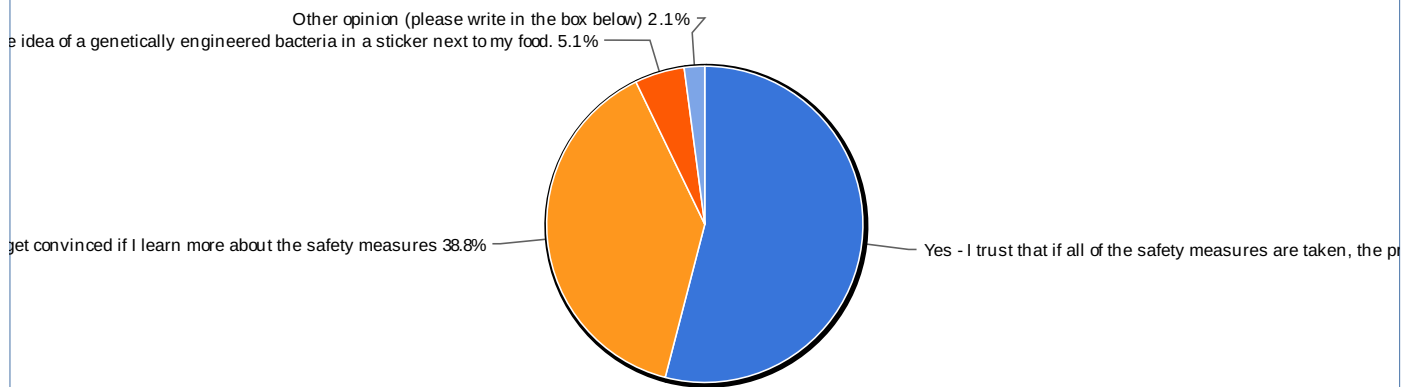## 15. Do you have anything you would like to share with us (feedback, ideas)?

Count	Response

1	Are you considering about the North America market?
1	Food education would suffice too
1	Great idea!
1	It is a neat idea, really. I hope it goes forward
1	It is very usefull. I would like to see profucts associated with this idea.
1	Lobby with the supermarkets, they have a lot to gain from this idea I think.
1	Nice idea!
1	Nice idea, good luck with IGEM!
1	Succes in boston!! Groetjes uit Eindhoven ;)
1	Supergoed product, alleen als het bijna tot niets extra kost.
1	The idee is good and could it be appiled to vegetables would it be even better
1	This sticker - nice gadget, but a gadget rather than a serious tool.
1	Use à different color fresh meat is red.
1	Very good initative-hope it will be a hype on the market !
1	freshness indicator instead of only turning when spoiled could be even more usefull
1	great idea guys best wishes!
1	im not a fan of modified organisms in food
1	it may be success if it is free
1	question 9. Ate bad Salmon that was infected with Salmonella
1	something like that should be standart
1	yes
1	I would want to be sure the Food Warden sticker is safe, does it detect rotten meat under every circumstance?
1	I vuy large packages of meat and like to freeze them in smaller sizes. I would need more them 1 sticker for the repacking at home. i think a roll of stickers is also very convenient to use on every kind of meat i repack at home. Would it also be working with fish?
1	Distributing the sticker with the meat might not be very efficient: I'd only want to put it on meat of which I suspect it was rotten. Put another way: I don't want to pay extra for meat with a sticker supplied with it, because in most cases I wouldn't need the sticker (consuming the meat long before the best before date). But I would be willing to pay for a general supply of stickers. [Assuming here that you can't re-use the sticker or put the sticker supplied with one piece of meat on another package.]
1	i finf it a very elegant system, because it prevends us from thoughing away good perfectly fine food.
1	The food warden might be a useful product to reeducate those, who believe best before dates are accurate, but you would have to proove these people that your method is accurate first. Also you'll have to find a way to make it seem a profitable measure for the industry as opposed to selling more meat due to people throwing out products whose dates are due.
1	I like the idea, and I think a lot of people will benefit from the product. Especially people who throw away food too soon with the only reason that it is at the expire date but still fine to eat
1	For an outsider it's hard to understand how it works and how reliable the measure is. Therefore I have some doubts, but if I would get more info than I can make a better decision.
1	So this Food Warden is only usable once ? And we would have to buy it every time. How long does it stay viable ? Can we re-use it for another meat if we ate the first one before it rot ?
1	It should be an European standard. You never know what producer, re-seller or retailer did with 'best before' dates. And most meat doesn't have it. On the other side 'best before' dates are not really a deadlines, so a lot of food is wasted, because it had reached its 'best before' date, but it is still eatable
1	needs to be a very reliable system, people will trust the result so it should be better than your own judgement of food quality
1	I like the idea. I would see it most probably being used in the higher range of products. These ask already higher prices and can handle a slight rise of prices. The lower range focusses on being cheap only and won't be quick to invest in this kind of products
1	People do not trust the "Best before" date but throw the food away after this date just to make sure. When using the Food Warden, you must therefor get rid of the best before date.
1	Save consume with FoodWarden! This is GOLD if you succeed and keep on trying to conquer the market. Just go for it!
1	The Food Warden System should be sensitive enough. It has to alert the consumer before the entire product is

	spoiled, but when there are signs the product is going to be spoiled soon (i.e: parts of the product are already spoiled, but this spoilage is harmless for the average person). Some people are more sensitive to food spoilage than others. This way you can protect even the most sensitive of people.
1	I like the idea, but I don't like the fact that it's even necessary. I'd like to see and smell the meet in order to know if it is fresh.
1	It's good to know for sure if your meat or other products have turned bad. This way you can discard the best before date and just watch the indicator. It would be especially cool if there would be different levels for the state of the meat. eg. yellow for OK, orange almost rotten etc. Further I would very much like such a sticker for fish.
1	It would be really nice if someone could tell everybody that "best before date" doesn't equel "immediatly throw away on that day"
1	The idea is good, but for use in "rich" countrys with freezers ang fidges i don't see a future for the product. In other "poorer" countrys it could be a good thing. Are the detected gases the only indicator…
1	lijkt mij een extreem goed instrument om voedselverspilling tegen te gaan. hoop echt dat hier iets uit komt.
1	Please develop death-modules first. Modules that ensure the death of the bacteria as soon as its of the sticker.
1	1. How do you know as a consumer that those bacteria on the sticker aren´t dead when you just got the meat/sticker. And how sensitive are those bacteria to warmth/cold. Anyway good luck, its a nice concept
1	To get to the hearts of people, not only is such a product required, it has to be cheap as well. If you make it cheap enough (and perhaps lobby at the EU to make it mandatory), this product could make a huge difference in consumer well-being!
1	Most people know when your food is still good or not because you can smell it immediately, maybe not in the package but definitely when you're baking it
1	"I don't think that such product is needed" Maybe it is needed but people should be made aware differently, this is no solution to the problem only a small patch on it.
1	I would see it as an extra service from the supermarket or producer, I would not buy those stickers separately and then use them on the product.
1	Often I eat the meat the same day. In that case the sticker is wasted. It might be nice to have a sticker that I can apply myself if I decide to store meat (if that is possible), or a (reusable) test to see it the meat is still good.
1	For this I have a cat. If i don't trust meat I give a piece to my cat, if she eats it its fine and i'll eat it too. If she doesn't eats it I throw it away.
1	I haven't missed the sticker, since I have never suffered from food poisoning, and don't recall the last time I ate spoiled meat. You can also smell when meat is spoiled, but perhaps there are false positives there. Still, I like the concept if this product introduces certainty.
1	Trying (old) meat on the cat also works very well. But buying a cat is probably more expensive than the sticker.
1	regarding question 10; i would consider buying the product .. but not if it costs 5-15 cent extra every time i buy meat :/ I would perhaps buy it seperately
1	did you contact people from the EU about the law? I think, when the system is proven it can do a much better job than te obligatory dates we have now. you can prove that less meat is spilled co2 reduction etc etc
1	I like your concept! Does it also work when you use a part of a meat package and put the rest in the freezer? By this I mean, does the sticker also work in the freezer? And if your idea is successful, will it be useful on other products as well? Like fish, bread, vegetables or other products? Good luck with the future progress of your idea/concept.
1	The "use before" date is unreliable and gives the feeling that products are still good, but the time stamp tells to throw it away. Any system that can produce a better method is appreciated. But when the Food Warden sticker generates an intermediate colour between neutral and red it is introducing another uncertainty when to throw it away. Clear how to use instructions are a must in that case. What is the safety factor build in?
1	I think it's a really good idea. I don't like to throw away food, and I think this sticker will help me to throw away less food (meat).
1	I don't think you should pay for something like this. It should be already integrated in the system as a normal safety measure for food consumption. It should be inforced upon meat producers at the policy level why is everything put on the back of the consumer while the copanies don't have do anything. i think it would be unfair to charge more for a product wearing the sticker. Everybody has the right to safe food. it should be the standard and not a hip trend for which you pay more!
1	It looks like a good product but IMHO it is not something that I would pay money for. When I buy meat I consume it the same or the next day. I don't wait until it spoils.
1	I'd wonder if this product could produce false positives too. If the product reaches the market and if it's used in a large environment, one false positive could diswarrent the whole system…

Other opinion (please write in the box below) 2.1%

e idea of a genetically engineered bacteria in a sticker next to my food. 5.1%

get convinced if I learn more about the safety measures 38.8%

Yes - I trust that if all of the safety measures are taken, the p

16. The Food Warden sticker contains genetically engineered bacteria. We have taken very strict safety measures to ensure the product is not harmful. You can find our safety measures and considerations on a dedicated safety page. Do you think it is safe to put Food Warden sticker next to your food?

Value	Count	Percent %
Yes - I trust that if all of the safety measures are taken, the product is safe	181	54.0%
Maybe - I am not sure if it is safe, but I might get convinced if I learn more about the safety measures	130	38.8%
No, I do not like the idea of a genetically engineered bacteria in a sticker next to my food.	17	5.1%
Other opinion (please write in the box below)	7	2.1%

Statistics	
Total Responses	335

| Count	Response
1	How about does it affect meat flavour or colour?
1	I am 81 years old, I don't want to judge these things.
1	I trust the government in this that when it is allowed to be used, it will be safe.
1	I'm generally positive about GMO
1	I'm not afraid of genetic modifications
1	Yes, but if it is mass-produced I don't know if I can still trust the sticker
1	third party laboratory should make test not sponsored by company related to food warden
1	There is nothing more harmfull about the bacteria you used than one that might get on my food from whatever surce including myself, for as far as I know you are not using a bacteria that is pathological in any sense, and the proteins produced by the bacteria will not be harmfull either. There is no biohazard.
1	I believe the safety is in order. The information page seams clear. One could wonder though if the bacteria could influence taste?
1	Genetically modiffied sound like "devils work". Most people will not belive it is harmless, specially with today propaganda genetical modifcations are evil.
1	I'm an engineer myself and I have no objections to using genetically engineered bacteria at all, but I'd like to be sure that the meat is still relatively "clean", as in, no other bacteria as to the ones that were already in the meat from the moment the donor was killed to the moment it was put in a package. Of cource, if you'd cook the meat, the bacteria would be killed, but still, since I don't yet know how the bacteria work, I wouldn't like to have them in contact with my meat as of yet.
1	What if i store the meat in a way that the bacteria die and can't detect rotten food anymore? dead bacteria -> no red color -> meat is good (even if its rotten and fungus is already growing on it)
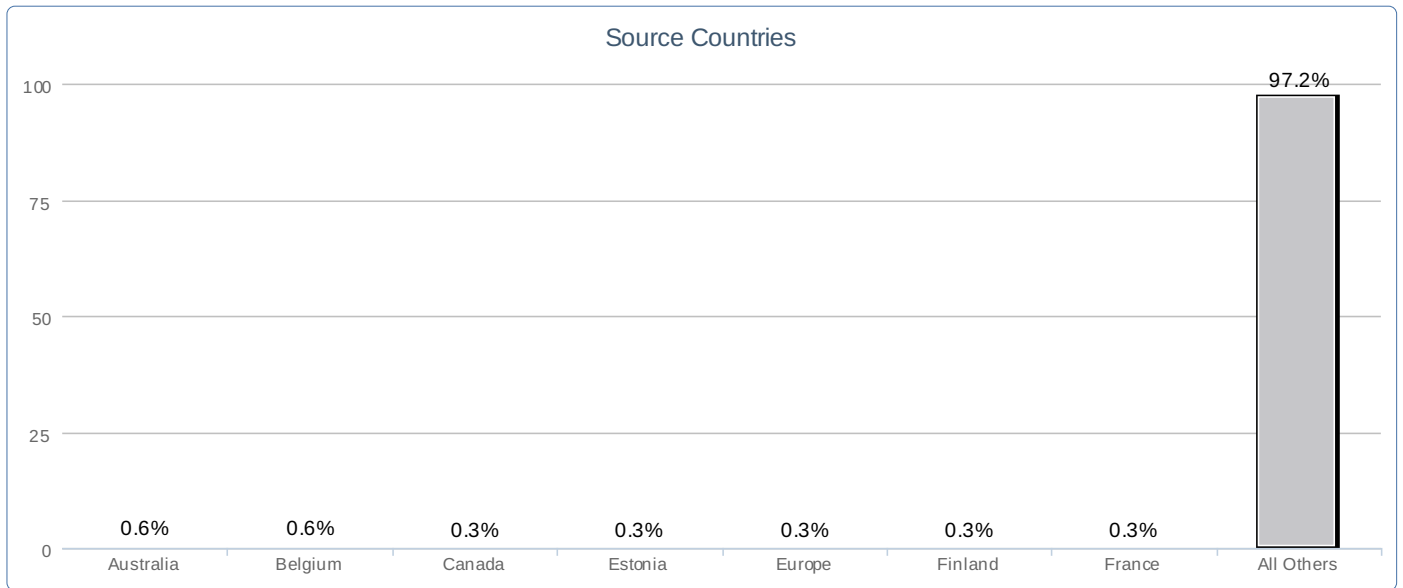
Source Countries

Source Countries

Value	Count	Percent %
Australia	2	0.6%
Belgium	2	0.6%
Canada	1	0.3%
Estonia	1	0.3%
Europe	1	0.3%
Finland	1	0.3%
France	1	0.3%
Germany	6	1.8%
Italy	1	0.3%
Japan	17	5.2%
Korea, Republic of	1	0.3%
Mexico	1	0.3%
Netherlands	264	80.0%
Poland	13	3.9%
Spain	2	0.6%
Sweden	2	0.6%
Switzerland	2	0.6%
Taiwan	1	0.3%
United Kingdom	4	1.2%
United States	7	2.1%

Statistics	
Total Responses	330
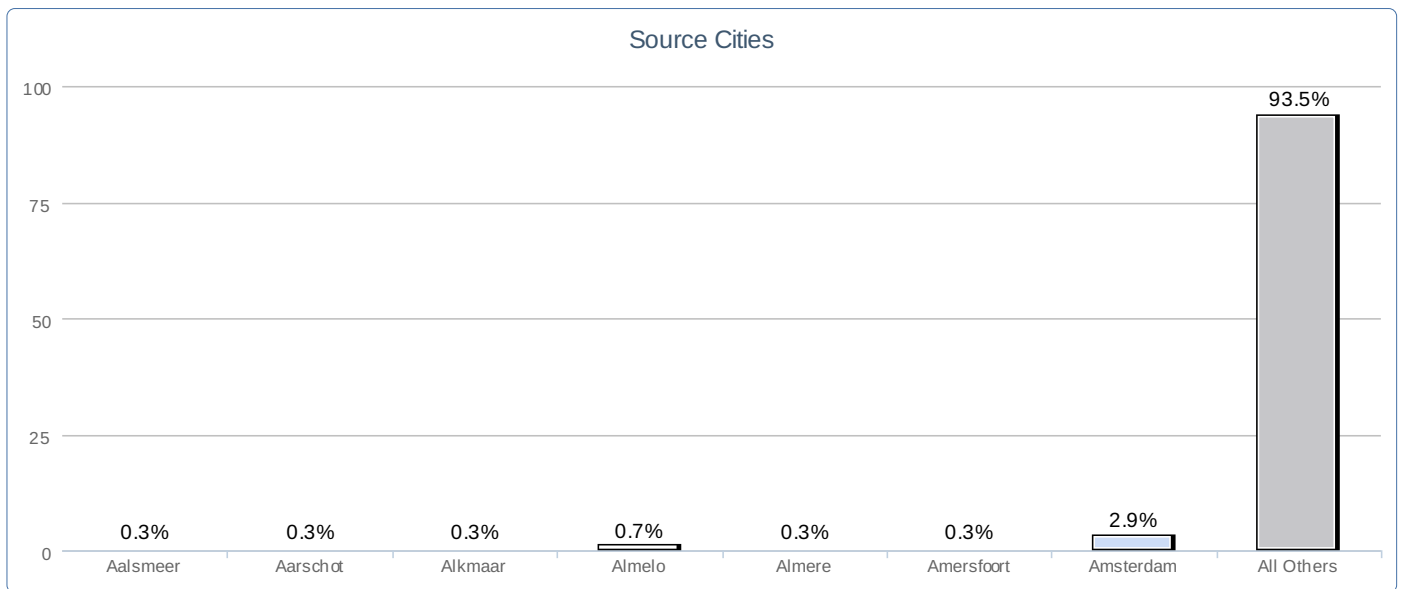
Source Cities

Source Cities

Value	Count	Percent %
Aalsmeer	1	0.3%
Aarschot	1	0.3%
Alkmaar	1	0.3%
Almelo	2	0.7%
Almere	1	0.3%
Amersfoort	1	0.3%
Amsterdam	9	2.9%
Anchorage	1	0.3%
Annen	1	0.3%
Apeldoorn	1	0.3%
Assen	2	0.7%
Baden	1	0.3%
Bakkeveen	1	0.3%
Bant	1	0.3%
Barcelona	1	0.3%
Barger-compascuum	1	0.3%
Beerta	1	0.3%
Bovenkarspel	1	0.3%
Breda	1	0.3%
Brunssum	1	0.3%
Cambridge	1	0.3%
Castricum	1	0.3%
Centrum	1	0.3%
De Koog	1	0.3%
Delft	2	0.7%
Den Bosch	1	0.3%
Den Burg	3	1.0%
Den Haag	5	1.6%
Dordrecht	1	0.3%
Drachten	2	0.7%
Dzierzoniow	1	0.3%
Eelde	1	0.3%
Eindhoven	2	0.7%
Emmen	4	1.3%

Statistics	
Total Responses	310

Enschede	4	1.3%
Epe	1	0.3%
Frankfurt Am Main	1	0.3%
Gorinchem	1	0.3%
Greven	1	0.3%
Groningen	82	26.5%
Haaften	1	0.3%
Haarlem	3	1.0%
Haarlemmermeer	1	0.3%
Hamburg	1	0.3%
Haren	2	0.7%
Harlingen	2	0.7%
Heerenveen	3	1.0%
Heerlen	1	0.3%
Heesch	1	0.3%
Hendrik-ido-ambacht	1	0.3%
Heumen	1	0.3%
Hoogeveen	3	1.0%
Hoogezand	1	0.3%
Hoogland	1	0.3%
Hoorn	2	0.7%
Ijmuiden	1	0.3%
Jersey City	1	0.3%
Kaatsheuvel	1	0.3%
Kalenberg	1	0.3%
Kampen	1	0.3%
Leeuwarden	4	1.3%
Lochem	1	0.3%
Losser	2	0.7%
Lubin	1	0.3%
Lund	1	0.3%
Luyksgestel	1	0.3%
Maastricht	1	0.3%
Malden	1	0.3%
Mantgum	1	0.3%
Marburg	1	0.3%
Melbourne	2	0.7%
Mexico	1	0.3%
Motherwell	1	0.3%
Munich	1	0.3%
New York	1	0.3%
Nieuw-lekkerland	1	0.3%
Nieuw-vennep	1	0.3%
Nieuwe-tonge	1	0.3%
Nieuwleusen	1	0.3%
Nijmegen	3	1.0%
Nootdorp	1	0.3%
North Brookfield	1	0.3%
Nowa	1	0.3%
Oldeholtpade	1	0.3%
Olivet	1	0.3%

Oosterwolde	1	0.3%
Osaka	4	1.3%
Ottersum	1	0.3%
Peize	1	0.3%
Pijnacker	1	0.3%
Polska	1	0.3%
Pori	1	0.3%
Raalte	1	0.3%
Richmond	1	0.3%
Rijssen	1	0.3%
Rijswijk	1	0.3%
Rotterdam	4	1.3%
Ruurlo	1	0.3%
Schagen	1	0.3%
Schwetzingen	1	0.3%
Seattle	1	0.3%
Seoul	1	0.3%
Sevenum	1	0.3%
Sint-niklaas	1	0.3%
Sneek	6	1.9%
Spijkenisse	3	1.0%
Suita	1	0.3%
Tallinn	1	0.3%
Taoyüan	1	0.3%
Ten Post	1	0.3%
Terheijden	1	0.3%
Termunten	1	0.3%
Terwispel	1	0.3%
Thesinge	1	0.3%
Tijnje	1	0.3%
Tilburg	2	0.7%
Tirns	1	0.3%
Tokyo	11	3.6%
Tours	1	0.3%
Toyonaka	1	0.3%
Trento	1	0.3%
Twijzel	1	0.3%
Uithuizen	1	0.3%
Utrecht	11	3.6%
Vaassen	1	0.3%
Valencia	1	0.3%
Veghel	1	0.3%
Vijfhuizen	1	0.3%
Voorburg	1	0.3%
Wageningen	1	0.3%
Wakefield	1	0.3%
Wamel	1	0.3%
Warsaw	7	2.3%
Westerbroek	1	0.3%
Wierden	1	0.3%
Wierum	1	0.3%

Woerden	3	1.0%
Wroclaw	1	0.3%
Yerseke	1	0.3%
Zeist	1	0.3%
Zetten	2	0.7%
Zoetermeer	2	0.7%
Zwaagwesteinde	1	0.3%
Zyrardow	1	0.3%