

## 7.7. Final User Surveys

### 7.7.1. Email Survey Template

This was 'informal' – an email with no leading questions sought quick responses.

*As we near the end of the trial period for the Detailed Weather Forecast project, it is time to seek your views about the service provided and its potential as a tool for farmers.*

*We would like to send you a formal survey, and to speak with a few of you later, but first, I'm very keen that you just respond off the top of your head.*

*So, please, reply to this with whatever comments you have about your experiences with HortPlus Metwatch Daily Reports and the Online System.*

A small number of growers replied (as with the first written mail survey at the start of the project). Further emails were exchanged with respondents, clarifying points raised.

Of those who did not reply, later communications with some indicated they were "sorry but just too busy".

### 7.7.2. Responses to email survey

Responses varied from "not much use" to "excellent tool". In part this seems to be locality related, and in part it reflects early experiences and possibly attitude to new technologies.

One grower felt the service was no better than other options and believed it to be highly inaccurate.

*Although quite fun to receive a daily forecast for Methven I do not think it is any more useful than the general forecast we can obtain free. I did find earlier in the summer the accuracy of the forecasts was bad. One particular day we were forecast 80mm of rain where everyone else was saying 4mm. When I rang to question it I was told they were confident 80mm was correct. It turned out that you had the wrong grid reference for Methven and it was stuck up in the hills.*

This response related to the initial incorrect grid reference given for the Methven station which resulted in incorrect forecasts. It seems correcting this was not acknowledged, and perhaps the service was written off at this early stage.

Other growers were enthusiastic:

*Love getting daily weather forecast for our area. Great job thanks!*

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And

*Very useful - Surprisingly accurate for predicting the area the weather station is in. eg the Chertsey Mid Canterbury area.*

*Found it very useful when planning ground vehicle boom spraying program, eg wind speed forecast. Good for planning harvest.*

*I would guess a diameter of 12 - 15 kilometres from the weather station is accurate for rainfall, but north and south probably more accurate for a greater distance, where as east and west probably 10 kilometres would be max on accuracy for rainfall data.*

Another grower indicated usefulness despite 'inaccuracy'.

*The service is proving very useful tool for making decisions on spraying and harvesting. Although St Andrews is not accurate as to winds, temperature and amount of rain, more often than not it does forecast the event is going to happen which is a great help.*

The lack of 'add-on tools' for arable diseases was noted by a grower who was positive about the service.

*The online system is better than the Daily reports. More info mainly. Good layout and helpful.*

*Been superseded by Met service rural to some extent ie no Chertsey/Ashburton site with met service*

*No Disease prediction for arable crops or vegetable crop grown for seed. This would potentially be the big advantage with Hortplus.*

*Timing of updates incorrect 7am Noon 7pm and Midnight would be better timing.*

### 7.7.3. Telephone Survey Template

Which is your base FAR weather station?

How far are you from the FAR weather stations?

Are there other weather stations in your area?

What information are they collecting?

Is this information available?

What are your most common/used sources of weather information?

#### **Now specific to MetWatch.**

Have you found the forecasts to be useful?

How often do you refer to the daily forecasts?

Can you tell me about the usefulness of detailed localised forecast (the hour by hour information) v's the less detailed regional text forecasts?

How accurate do you think the weather forecasts are?

Have you found the on-line information to be useful?

Which parts of the on-line information have you used?

How often do you refer to the on-line information?

Which parts of the on-line information do you find most helpful?

#### **Management Decision Making**

For which decisions do you think about looking up the forecast?

For which decisions do you think about looking up recent weather station information?

Have you changed any of your practices based on routine access to forecasts?

Have you changed any of your practices based on access to recent weather station information?

Do you use any decision support tools?

How do you see Decision Support tools in the future of your business?

What type of weather information do you think is needed to feed the decision support tools?

Would you pay for the subscription service?

Are there any other comments you would like to make?

Was the project useful?

7.7.4. Summary of responses

Weather information

**Most common/used sources of weather information**

Most weather information users are seeking predictions and use multiple sources plus personal interpretation. There is some use of, but little emphasis on, access to historic weather data.

■ *"I already know what happened!"*

**Forecasts**

The key points are that people are using multiple sources and applying their own interpretations to whichever forecasts they receive. Experience has taught them how to refine the general and more detailed information available to calibrate to their own site(s).

Most people use TV (6pm) to get a general picture of weather at broad scale.

■ *"The visual presentation is very helpful. It does give a good overall picture".*

Many use local newspapers for more detailed local information. Some papers are providing additional information such as PET and soil temperatures.

A proportion of growers use a number of other on-line sources. Two users in particular draw data regularly from a number of sites and constantly seek more sources.

METVUE is suggested as best for longer term indications. The MetService Rural site is suggested as a newer free alternative to HortPlus MetWatch, though 3 hour chunking is limited for some applications. The HortPlus service is identified as being the best for detailed decisions such as identifying spray window opportunities.

Some growers have very poor internet access, and this generally excludes them from accessing this type of information. Cellular text messaging with key information is suggested as a prime potential method of presenting weather information; the corollary being that subscribers could then access more detailed information on-line is warranted.

**Weather Records**

Several growers use wheat calculator and receive updated historic weather from Crop & Food as part of that. One noted that recent historic data can be helpful for irrigation scheduling decisions. Most farmers suggest that the utility of historic information for their farming operations is limited at present.

The process factory noted the use of recent historic data for disease modelling blight. Data for this is accessed from their own stations. A grower accessible

disease predictor is seen as extremely valuable, but would need to have capability for paddock specific calculations.

## HortPlus MetWatch Forecasts

### **Usefulness**

All but one person found the forecasts very useful. The one who did not, discussed needing to learn to trust it.

He did think the forecast was the best for wind prediction, a lot closer than TV or radio. A self-described pilot, he uses a barometer as a key indicator especially for wind. He also noted that this year the MetWatch wind forecast had been right when the barometer indicated otherwise.

Like others, he found the rainfall forecast was good on predicting timing of events, but not so accurate on depths.

*"Last week it predicted occasional scattered showers, but we got 30mm".*

Those finding the forecasts useful noted application for assisting with planning work operations.

*"It lets me 'semi-plan' ahead for the week. I have to refine it each day"*

*"The wind prediction is useful, it tells me whether to send the guys north or south to spray first"*

*"When we were busy at harvest, with several crops almost ready, I could see I might as well continue with the onions and leave the cereals to dry for a few more days."*

### **Accuracy**

Users were generally satisfied with the apparent accuracy of forecasts. Some suggested it was the most accurate they had experienced. Others thought it still somewhat unreliable.

*"I was really surprised at the accuracy of the Chertsey forecast. It was very good, and I didn't think it would be. The accuracy extends further north-south (15-20km) than it does east-west (8-12km)."*

*"It's not as accurate as I'd hoped. Especially the wind, but we're quite a way from the weather station and it's probably right for there."*

Most noted forecasts were not particularly reliable more than a couple of days ahead. They also commented on the fact that predictions changed as events got closer.

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*"I'd say 48 hours or more out the accuracy is questionable but it gives a guide."*

Overall the prediction one to two days out was considered good by most.

The nature of inaccuracy was more in the wind and rain detail than an event occurring. Events occurred, but to a greater or lesser extent than indicated. Temperature predictions were perceived to be fairly good.

*"There isn't one thing that's always wrong. It might be the wind direction today, the amount of rain tomorrow."*

*"Sometimes everything is spot on. Sometimes the wind will be wrong or the rain will be wrong. There is no one thing that is bad."*

Users felt that most times a rain event was predicted it would occur sometime within an hour or two of the predicted time. However, the depth of rain received could be quite different.

*"Last week it predicted occasional scattered showers, but we got 30mm".*

*"It said there would be 6mm of rain so I put on a rain activated herbicide and there wasn't even enough to make the concrete wet."*

Growers nearer the hills thought rainfall difficult to predict in their districts because of geographic influences, especially for certain wind directions.

*"In our area there is a kind of weather division – the rain may go out to sea or go inland along the hills."*

Similarly, for many users, the wind direction tended to be correct, but the strength may vary.

*"If it says we're going to get a nor'wester we will, but the strength can be wrong."*

Local differences were evident and seen to have significant effect further from the base station site.

*"We're about 15 km from the station at Methven and the Rakaia Gorge has a big effect. The wind funnels down the gorge – some mornings we can have early wind too strong for spraying, but it drops away later, but the Methven site doesn't pick that up."*

The inaccuracy of wind strength forecasting was not always seen as problematic.

*"I found that if it's predicting wind over 10km/h, there is not going to be much of a chance for spraying, and that was pretty reliable."*

#### **Detailed local v's general regional**

The ten day regional text forecast was seen to provide a useful overall picture. However, it was not seen as better than any other forecast, and perhaps less useful than some. The TV news and midday radio forecasts were helpful for the 'big picture' because they covered adjoining regions and growers could track larger scale movements.

*"The TV presentation is very good. At St Andrews we need to see both Otago and Canterbury to make sense of things and TV is good for that."*

The detailed forecasts were valued for specific decision making. Some users were happy with a daily forecast, others rechecked at intervals during the day for particular reasons. Crop spraying decisions were most commonly noted as needing detailed information and the hour by hour HortPlus forecast was regarded as best for that. Access to the on-line information was seen by some as very useful.

*"If there is a weather feature predicted – maybe a front moving over the island – I can keep an eye on its progress by going on-line"*

Others suggested once a day planning was sufficient. They typically made little or no use of the on-line access.

*"If I tried to adjust plans every couple of hours, nothing would ever get done!"*

The time of updating of the forecasts was raised. Several people did not realise they could specify what time they received forecasts. One person noted that the timing of forecast updates needs to be publicised so people know what to expect.

*"I get my forecast at 6.30am, and my neighbour gets his at 7.30am. The difference in the two can be very significant. I didn't realise it changed at 7 o'clock."*

#### **On-line information**

Two distinct approaches are evident – users do or don't go on-line. Those who do are usually seeking the most up to date information, maybe several times a day, or they want to find out about conditions away from their home station.

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*"The on-line part is the best bit! Especially the access to maps, give you the general trends eg at harvest time I could see there was a period of changing systems – I could tell it wasn't going to settle into good or bad. There was going to be a series of events passing through."*

*"I don't much look at the email, as by the time I get it I've already been on-line to check everything out. I'd like the updating to be a little earlier than 7am."*

*"We operate in several districts, so I want to know what is happening at the other places too. My forecast only tells me about one place."*

*"It can be quite good for when I'm going hunting . . . "*

The reason for not using the on-line service varies. In some cases internet connections are bad. In others, people are busy and do not perceive the time spent on-line gives sufficient extra benefit.

*"I tried using the on-line site early in the project, but it was hopeless. The connection kept cutting out, and I'd wait for hours to get anything."*

*"I've used it a bit, especially now I've got satellite broadband. It's a good back up to the morning email, especially when a front is coming through."*

*"I've never really looked at the on-line stuff. My wife prints off the email forecast and I grab that for the day."*

## Management Decision Making

### **Decisions that use weather information**

The most common use of detailed forecasts was for spraying decisions. In this context, the lack of disease prediction tools was lamented.

*"We contract spray, and the forecasts let me tell the drivers whether to head north or south first thing each day"*

*"The forecast format is good – very easy to understand. For spraying decisions, if it says the wind will drop off at three, it usually will within an hour or two either side of that."*

*"We do some disease modelling and the forecast helps decide whether to use a cheap protectant or an expensive eradicator. Ideally the disease models and the forecasts would be integrated – that would be a real help for farmers."*

*"It helps us plan our spraying a couple of days out, which helps when we're busy."*



Most users also recognised the information was helpful in making harvest decisions. Sometimes this meant delaying, other times hurrying and sometimes deciding which crop to harvest first.

*"We were busy harvesting onions and worrying about the grains. The forecast showed there was little chance of rain but little chance of further drying either, so we carried on and got the onions in."*

For factory supply management the forecasts helped decide whether to stockpile some extra if an event is predicted.

Several users also noted that cultivation and planting decisions were better especially when conditions were marginal.

*"I could see that it wasn't going to rain so I could wait another day or so"*  
*"It helps me decide urgency of planting and cultivation. Do I need to jump in now or shall I put it off for a few days?"*

#### **Changes to practice**

Most users believed they had made only minor changes to their practices. Often they found it difficult to quantify change, but they thought they were doing things better. Timeliness of operations was the most reported factor.

*"Mainly I think it's just made it easier, taking some of the guess work out of when to do things. We get a better lead time, so we can make better decisions."*

Most said they would make more significant changes if, for example, disease forecasting was integrated into the service.

*"I'm sure I make changes if we had blight models - it would be very useful. We could target cover much better in spring."*

#### **Use with Decision Support Tools**

Several farmers have been involved with Wheat Calculator and similar Decision Support Tools. Many have not used such tools themselves yet. All considered that use of Decision Support Tools would be integral to their business in the future.

Those using Wheat Calculator noted that 'someone else' took care of updating the weather for them. They were aware that if they were downloading data for themselves they would need it to be in suitable format and easily loaded to the calculators with little room for mistakes.

*"I can see we're going to have to use these things. We'll have to use them once nitrogen use gets more regulated, won't we?"*

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*"We really need disease predictors. The amount of money we could save there would easily cover the cost of the weather forecasts."*

#### **Would you pay for the service?**

*"No."*

*"Yes."*

*"It's hard to put a dollar value on it. AS it is, I think I can get most of the information elsewhere. With diseases built in I think it would easily pay for the subscription."*

*"As it is , no. There are better returns on \$800. Maybe it's worth \$100 - \$200 as it is. With diseases it would be worth it."*

*"Through the main activity period, spring through autumn I probably would, but I'm not too sure how much."*

*"If it had the ability to have paddock specific disease prediction it would be very easy to justify the cost."*

*"I'd really like to have good blight prediction on it; then I'd pay. The preventative programme we use for cereals is working ok for now."*

#### **Project Usefulness**

Everyone interviewed saw the project as being very useful. The reasoning varied, in some cases acknowledging that any research adds to the pile of knowledge. More specific benefits include showcasing current technology, making people aware of what could be done, and even identifying that infrastructure problems prevented some people accessing the information.

*"It's made a real difference to us. We have much less lost work time with our spraying. That is a direct financial benefit to us."*

*"This sort of information is really important and we're going to need it more to feed the tools. You'd never have got people on board if you hadn't done it."*

*"It's been a very interesting project from my point of view. And a direct benefit to us was getting a more localised forecast we can use – it's taken some of the guess work out."*

*"If nothing else, it shows not all of us can access information. And maybe we need a more relevant site than is currently available."*

*"It has definitely been a very useful project. It really showed just what is now possible. And what still needs to be done."*

*"It's given us an idea of what's out there. If they can do that stuff for apples, we should be able to do it for vegetables and other crops too."*

#### Where to for FAR?

*"I think using levy money to have this on the FAR site would be good. People often ask what they get for their levy, and this would be a very visible example."*

*"It would be best if the forecast came as a text message with key information presented on four lines. If needed, people go on-line to get more."*

*"We need to get the disease models up and running."*

*"Disease models would add more value than anything – 'TomCast' was developed for tomatoes but apparently works well for Alternaria in carrots"*

*"Need to link the package with the crop models and the disease prediction programmes."*

*"We need more stations in the network - there's a hole in the info around Timaru."*

*"It would be good to get a weather station at Wakanui, maybe one half way between Methven and Rakaia, one in from Fairton."*