

Hazel™Trex - KIWIFRUIT

5 easy steps to using the Hazel™Trex Test

Designed to determine physiological status of vines in relation to optimal timing to apply your budbreak enhancer

1. PURCHASE THE TEST KIT

2. MAKE A PLAN

- Determine your expected spray window, sample collection date/s and identify

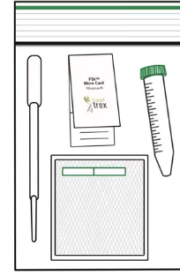
3. COLLECT AND PREPARE YOUR SAMPLE

- Select your sample vines, collect the buds and prepare the sample

4. SAMPLE ANALYSIS & RESULTS

- Register the sample and send to Hill Labs for analysis
- Hill Labs send data to Hazel and Hazel notify you of the result (email)

5. RESULTS - DECIDE WHAT IT MEANS



Estimate your spray window

Consider the following:

- Winter Chill accumulation
-own weather station is best
- Use a model to estimate the window
- Compare to
 - Historic natural budbreak dates
 - Previous spray dates (and results)



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Estimating natural budbreak timing

To work out natural budbreak timing for your site and your Hydrogen Cyanamide application date, use the Massey model and Julian calendar below.

Step	Your orchard	Example
1	Avr-May 2018 temperature	10.5
2	Avr-June 2018 temperature	16.4
3	Mean budbreak date	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
4	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
5	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
6	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
7	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
8	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
9	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
10	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
11	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
12	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
13	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
14	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
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18	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
19	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
20	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
21	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
22	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
23	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
24	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
25	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
26	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
27	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
28	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
29	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
30	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
31	Start of natural budbreak	6.30 (10.5-16.4) x 25 + 10.5 Day 254 (21 September)
Jan	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
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Determine your first sampling date

What is the window you expect to be optimum

19 July – 3 August

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Why might I want to use a Hazel™Trex Test?

- The test can be taken at different times for various reasons.
 - a) relatively early in the season could indicate what 'type' of season can be expected (about 2 weeks before your expected spray date).
 - b) shortly before the anticipated spraying date can be used to confirm other data (or reconsider them!) (within a week to ensure results is back before you want to spray).
 - c) on the day of spraying can help determine what to expect from the actual application and can be useful to help interpret results.



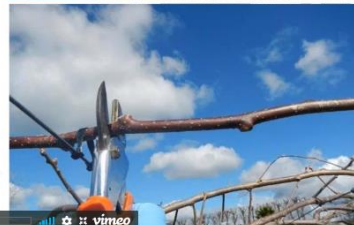
Select your sample vines

COLLECT 25 BUDS FROM 5 VINES ACROSS THE TEST AREA – BLOCK / MA

You are trying to get a representative sample.

- Take vines spread across the block.
- Choose healthy, representative (same rootstock) vines of the block – mark these vines with flagging tape.
- Select woodtype/ canes which are typical of block:
 - Don't select buds from different woodtypes
 - Collect upward facing bud which have had good sun exposure from wood which carried fruit last year.

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Cut out the buds



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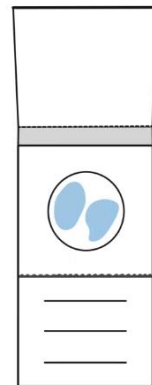
- Need to cut out entire bud - this will involve a bit of scooping out.
- Just cut out the bud, not surrounding tissue - any woody tissue will absorb the solution and make it harder to squeeze the liquid out.

Prepare your sample

Instructions provided in the kit

Crush buds with buffer solution in bag provided

- Prepare your sample carefully, yet swiftly.
 - Tip: Taking too long to remove the buds (more than 5 mins) will negatively affect the quality of your sample.
- Smashing the buds (more than 1 min) will negatively affect the quality of your sample.
 - Tip: Don't hammer too hard (you can split the bag)
 - Tip: Hammer on smooth surface (deadman posts contain splinters that pierce the bag).



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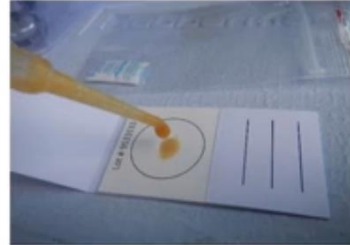
Prepare your sample

Press **Esc** to exit full screen

Instructions provided in the kit

Place droplets of the juice onto the FTA card provided

- You only need two droplets
 - Tip: Squeezing the bag makes it easier to get solution
- Leave the card to dry for at least 2 hours
 - Tip: Avoid placing the card in direct sunlight for too long (i.e don't leave it on the window sill for the day)



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Register your test online

WWW.HAZELTECHNOLOGIES.COM

hazel technologies inc.

Hazel trex
MEMBER LOGIN

NAME

ADDRESS

PHONE NUMBER

LOCATION OF TEST PLOT

VARIETY BEING TESTED

DATE OF SAMPLING

EMAIL

ID#

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The back of the card will have a barcode with a unique identifier

Go online and register the test.

What do you need to include?

- Variety? Gold or Green
- Dormancy breaker - HC or Advance Gold
- Name
- Contact information
- Happy to share data with Zespri (yes by default)

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Sample analysis & results

SEND TO HILL LABORATORIES

- Use the provided, prelabelled courier bag to ship your samples to Hill Laboratories
- Try and take samples earlier in the week to avoid weekend delays
- Recommend dropping straight to Couriers in morning if want result processed the fastest.



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Sample report

Hill Labs send data to Hazel

Hazel notify you of the result (email)

48-hour turnaround time

**Dormancy Breaker & Variety Indicated
Previous to Analysis**

EXAMPLE REPORT



Press **Esc** to exit full screen



Customer: Dr. Mary Black

Variety: G3

Address: 400 Maunganui Rd
Mt. Maunganui, New Zealand
Orchard Block #3
Test ID #123456789

Dormancy Breaker: Advance Gold

Sampling Date: August 4, 2020

Report Date: August 5, 2020

Test Results



Orchard Block #3

Sample Score: Early

Remarks:

Your results indicate that it is early for optimal application of budbreak enhancer to the sampled vines. Your readings imply that your optimum window will begin in approximately 11 days. Optimum windows as indicated by Trex are generally 10-12 days in your region. When selecting and planning applications, please remember to review your label directions to ensure safe and effective application.

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Results - what do they mean?

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- Is it in the right window?
- Do I want to take another test? - on the day of application
- Is the result what I expect?
 - **Too early result** – difficult to draw any conclusions on when the optimum window is – retest in a week to 2 weeks
 - **Early** – you can choose to spray based on the result or retest in a week
- Sometimes we see unexpected results
- This is one part of a much bigger decision-making process



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What else matters?

Efficacy of budbreak enhancers

- ✓ Timing – the window and
- ✓ Wood Type & quality
- ✓ Spraying conditions
- ✓ Spray Mix - Rate, Volume, Adjuvants
- ✓ Coverage
- ✓ How well did I do? → Monitoring your results

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HYDROGEN CYANAMIDE SPRAYING GUIDE FOR Applicators

UNDERSTAND YOUR SPRAYER
 Check the nozzle size of hydrogen cyanamide (HC) requires the correct application using large droplets at minimum 200 microns. Always be consistent with drift-reducing adjuvants (spray oil or oil emulsifier) to reduce spray loss from the sprayer by 75-90%.

RATE, VOLUME & ADJUVANTS
 Typical HC applications are between 500 and 700L of spray volume per hectare, with 4 to 6 litres of product per hectare. Volume is more critical than rate and is generally only used in more drying conditions. The addition of a drift-reducing adjuvant (such as Diftrol) is required. This reduces the potential for drift, spray deposits and improves droplet retention and coverage on the target.

SHOULD I BE SPRAYING TODAY? ADJUST FOR CONDITIONS
 Only spray under suitable conditions. Never spray when wind speeds are greater than 15 km/h or when there is a temperature inversion. Do not spray when there is a temperature inversion. Do not spray when there is a temperature inversion. Do not spray when there is a temperature inversion.

TALK TO THE GROWER
 If you are a spray contractor, it is important that you and the grower are on the same page. Make sure that you understand the grower's requirements for the spray and that you are aware of any specific requirements for the grower.

IS THE APPLICATION HITTING THE MARK?
 Check the ground with water before spraying. Look for good between-row and border coverage. Look for good between-row and border coverage. Look for good between-row and border coverage.

MONITOR CONDITIONS
 Monitor conditions that change rapidly and potentially in large intervals may become unsuitable for spraying during the course of the application. Windy conditions and any change in wind direction and speed can affect the spray pattern. Monitor conditions that change rapidly and potentially in large intervals may become unsuitable for spraying during the course of the application.

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Sharing data

If you opt to share data with Zespri

GET will send an email with some resources to help you work out what you need to do to understand how well the product has worked.

We will your results to be able to report:

- Where the test has been used
- Follow up with some growers on how they have used the test result to inform their budbreaker application dates and what results they have had.
- We will aggregate data up to industry level or anonymise individual data

