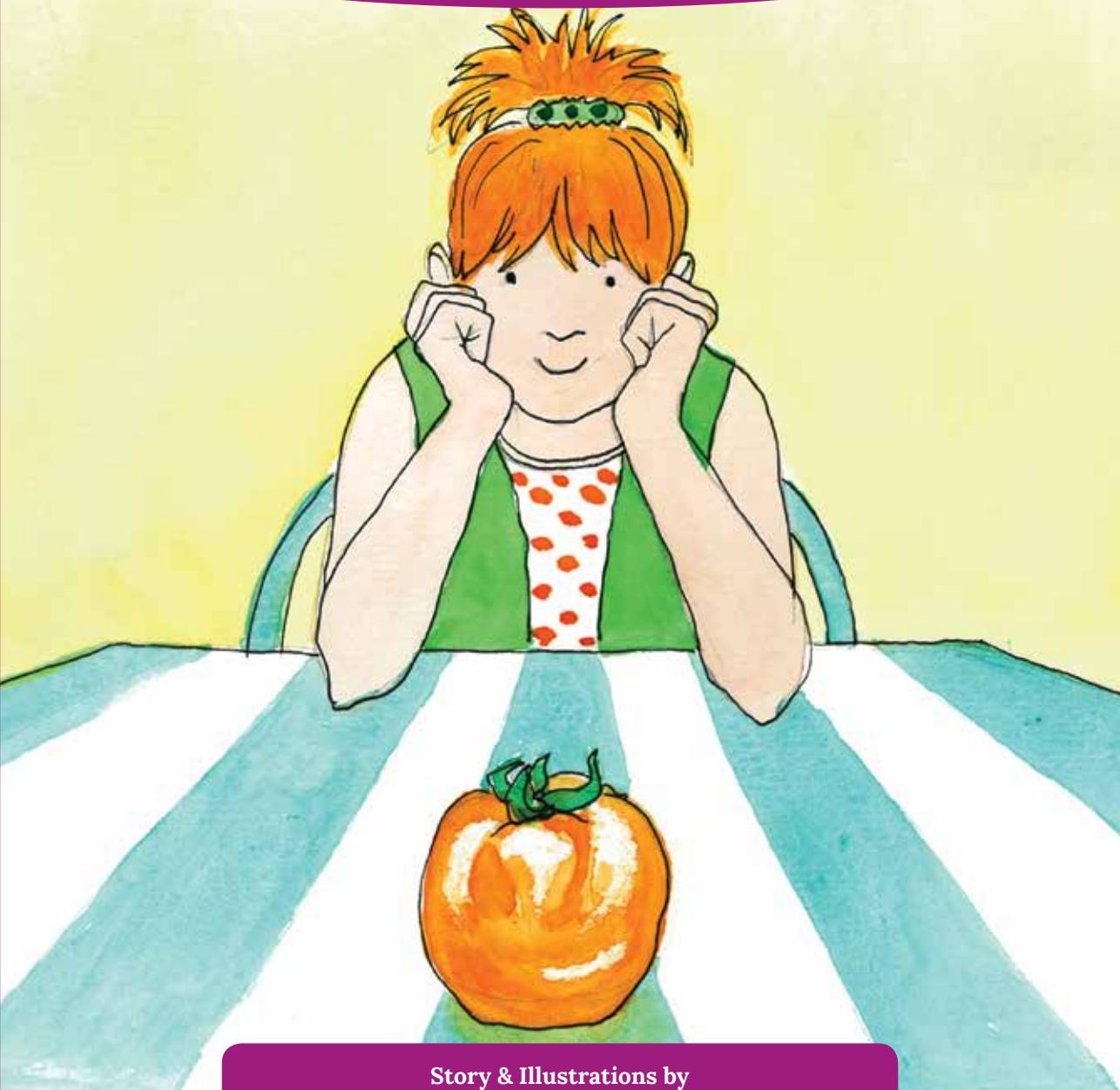


jessica and the **Golden Orb**



Story & Illustrations by
Janet R. Bradbury

Jessica
and the
Golden Orb

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Acknowledgements

We would like to thank all of the volunteers, family and friends who gave their time, energy and expertise in pursuit of a dream - to find the best tomatoes in the world for health. We are also deeply appreciative of the anonymous donors who helped to fund the research to keep this dream alive; the Powerco Wanganui Trust and Whanganui Community Foundation for helping to pay for this book.

Sincere thanks to Janet Bradbury for the gift of her artistry and storytelling to bring this concept to fruition, inspiring a young audience to learn about and grow these wonderful tomatoes.

- Heritage Food Crops Research Trust



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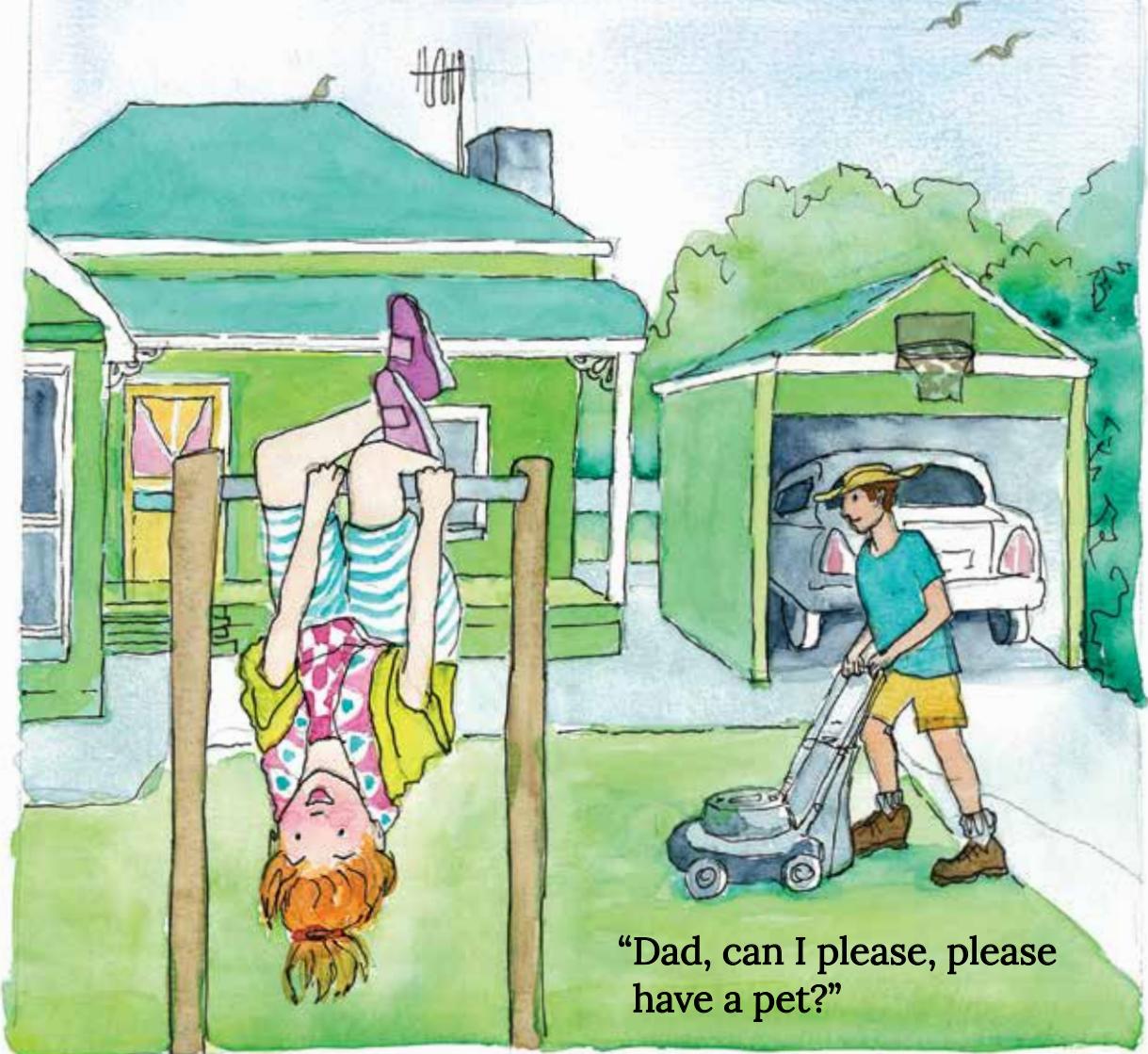
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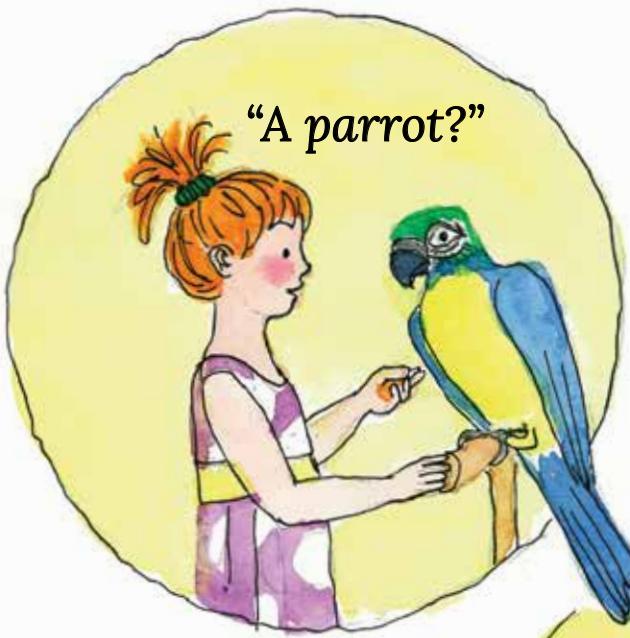
Story and Illustrations by Janet R. Bradbury

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Jessica lived with her Dad.
Just him and her.

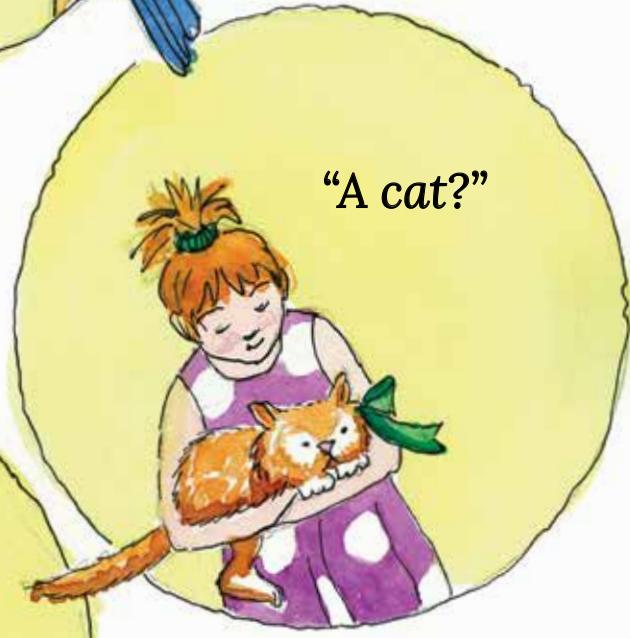


“Dad, can I please, please
have a pet?”



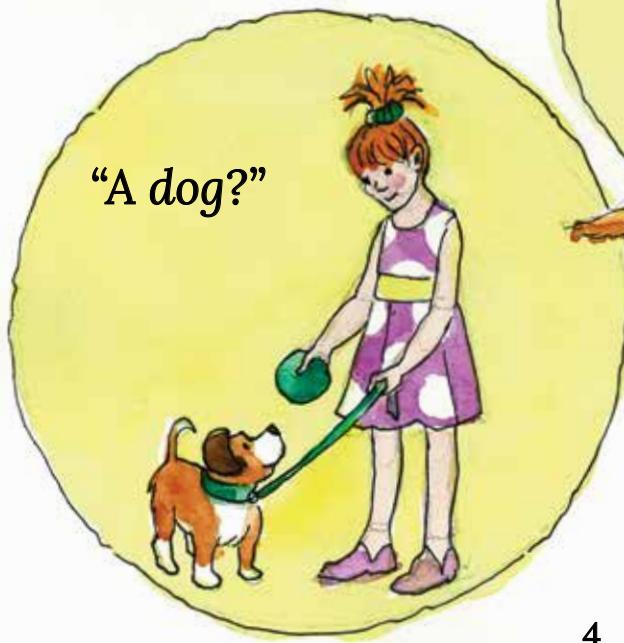
“What sort of pet?”
asked Dad.

“A parrot?”



“No darling,
too squawky.”

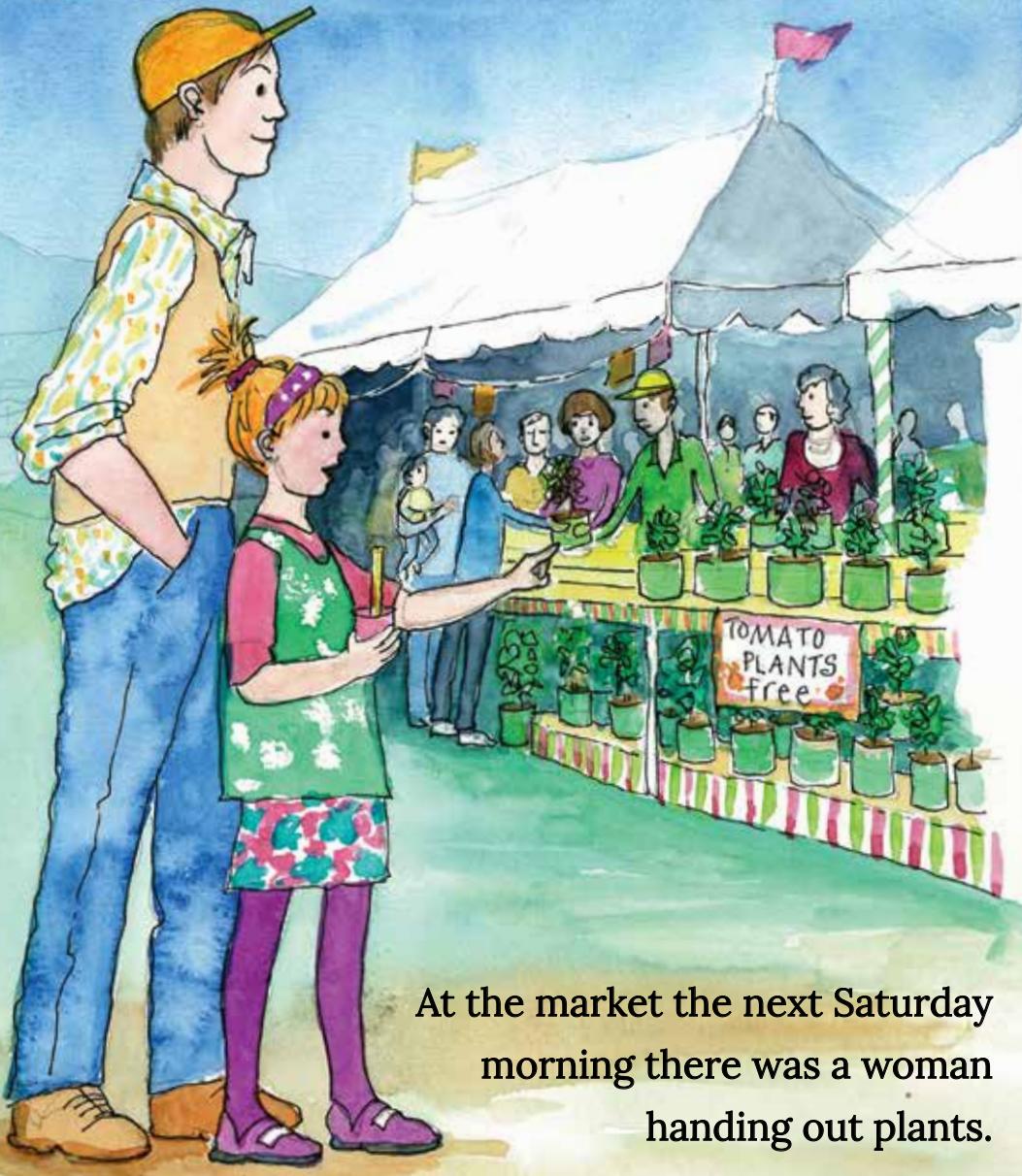
“No darling,
too meowy.”



“A cat?”

“A dog?”

“No darling, too barky.”



At the market the next Saturday morning there was a woman handing out plants.

“Dad, can I please have a plant for a pet?”

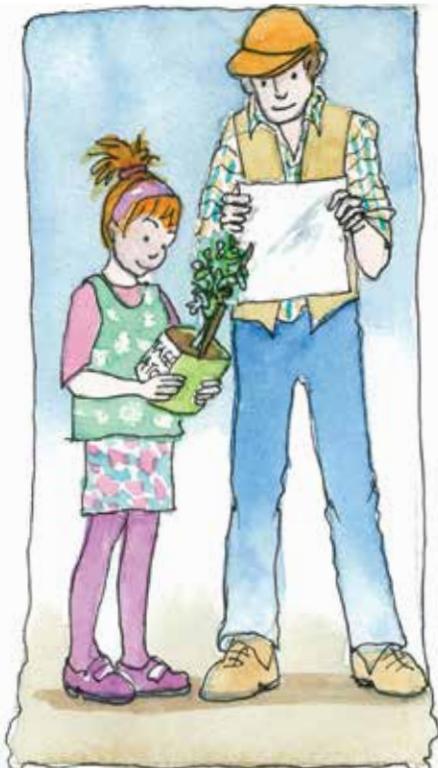
“Yes, I think that would be OK”, said her Dad.



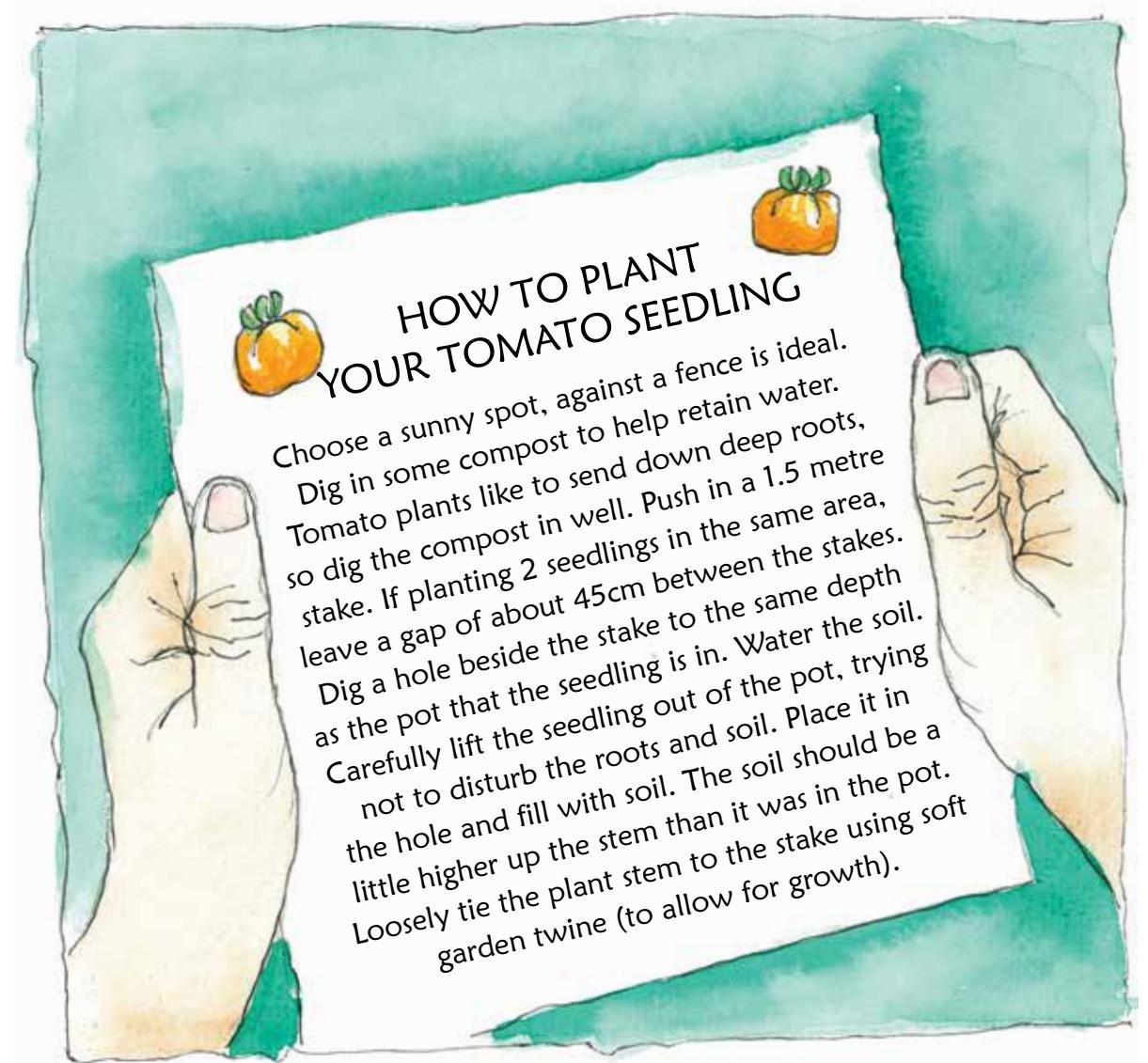
"Do you know how to care for it?"

"Yes," said Jessica,
"it comes with instructions."

"So, where shall we plant it?"
asked Jessica.



"Let's read the instructions and find out," said Dad



HOW TO PLANT YOUR TOMATO SEEDLING

Choose a sunny spot, against a fence is ideal.

Dig in some compost to help retain water. Tomato plants like to send down deep roots, so dig the compost in well. Push in a 1.5 metre stake. If planting 2 seedlings in the same area, leave a gap of about 45cm between the stakes.

Dig a hole beside the stake to the same depth as the pot that the seedling is in. Water the soil.

Carefully lift the seedling out of the pot, trying not to disturb the roots and soil. Place it in the hole and fill with soil. The soil should be a little higher up the stem than it was in the pot.

Loosely tie the plant stem to the stake using soft garden twine (to allow for growth).



"Let's plant it here in this sunny, sheltered spot close to the house where you can keep an eye on it."

Every day Jessica made sure it had enough water and she cut off the lower leaves so disease wouldn't grow on them.



One day as Jessica carefully watered her plant she said, "There you are, little tomato plant, I won't water your leaves in case you get mildew on them."



She heard a voice say “Thank you” and looked around to see who had spoken, but there was no one there.

“Thank you for watering me so carefully”. Jessica stared down at the little plant.

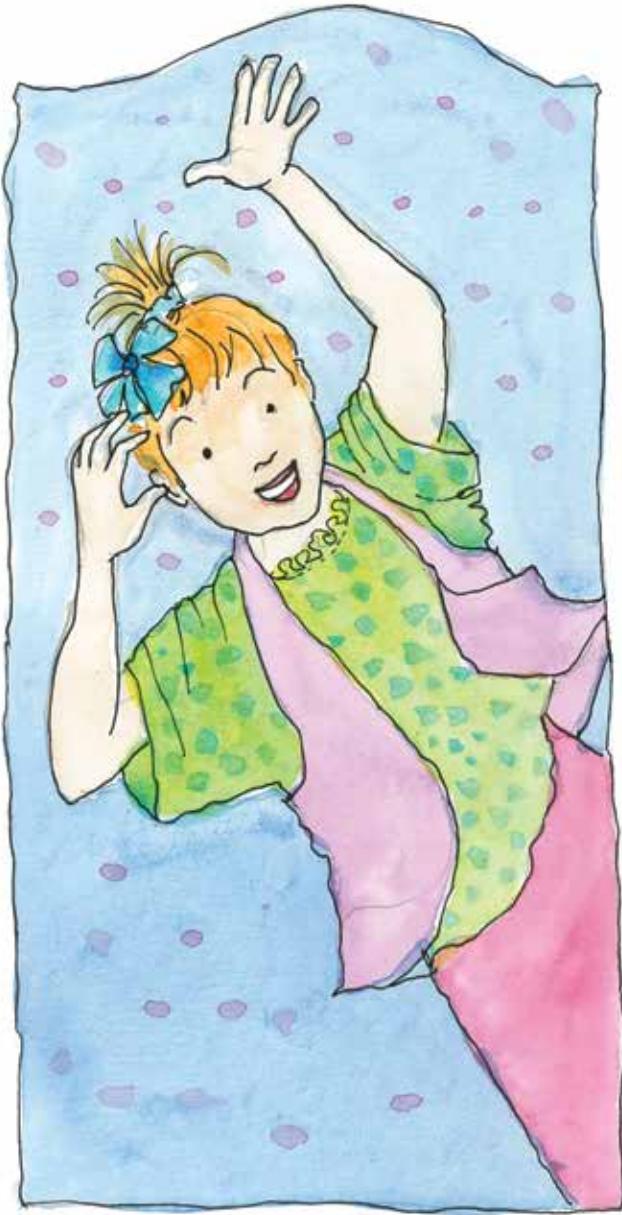
“Did you just say ‘thank you’? she asked.

“Yes, of course”.

“But I didn’t know plants could talk.”

“Yes, we can – but only those who listen will hear us.”

“Wow!” exclaimed Jessica.
“This is amazing! I must go and tell Dad.”



Jessica rushed inside.

“Dad, Dad! My little tomato plant can talk! It said thank you”.

“Really?” said her father.
“That’s pretty awesome.”

“Come out and listen to it,”
said Jessica.

“Not now dear, I’m just
getting tea on ...” said Dad.

At school the next day Jessica told her class about talking to her tomato plant.

Everyone was amazed.





Each day Jessica tended her little plant which grew vigorously. She fertilised it with ‘worm wee’ and weeded it carefully. Every time she tended it, she told the little plant it was doing very well. And the tomato plant replied, “Thank you!”

“Is it just you,” asked Jessica one day,
“or can all plants talk?”

“All plants talk,” said the tomato plant, “if humans will listen”.





Soon the tomato plant flowered. Jessica was pleased that there were borage plants nearby, as the bees that were pollinating the blue borage flowers also visited and pollinated the tomato flowers.



Jessica pinched out the lateral shoots to keep the plant growing tall and strong. And the tomato plant kept thanking her.

And she sprayed the plant with garlic spray to keep away unwanted pests.



Garlic Spray

2 litres of hot water
8 crushed garlic cloves
1 teaspoon of liquid soap
1 tablespoon of pepper
a bucket
a sieve
a spray bottle

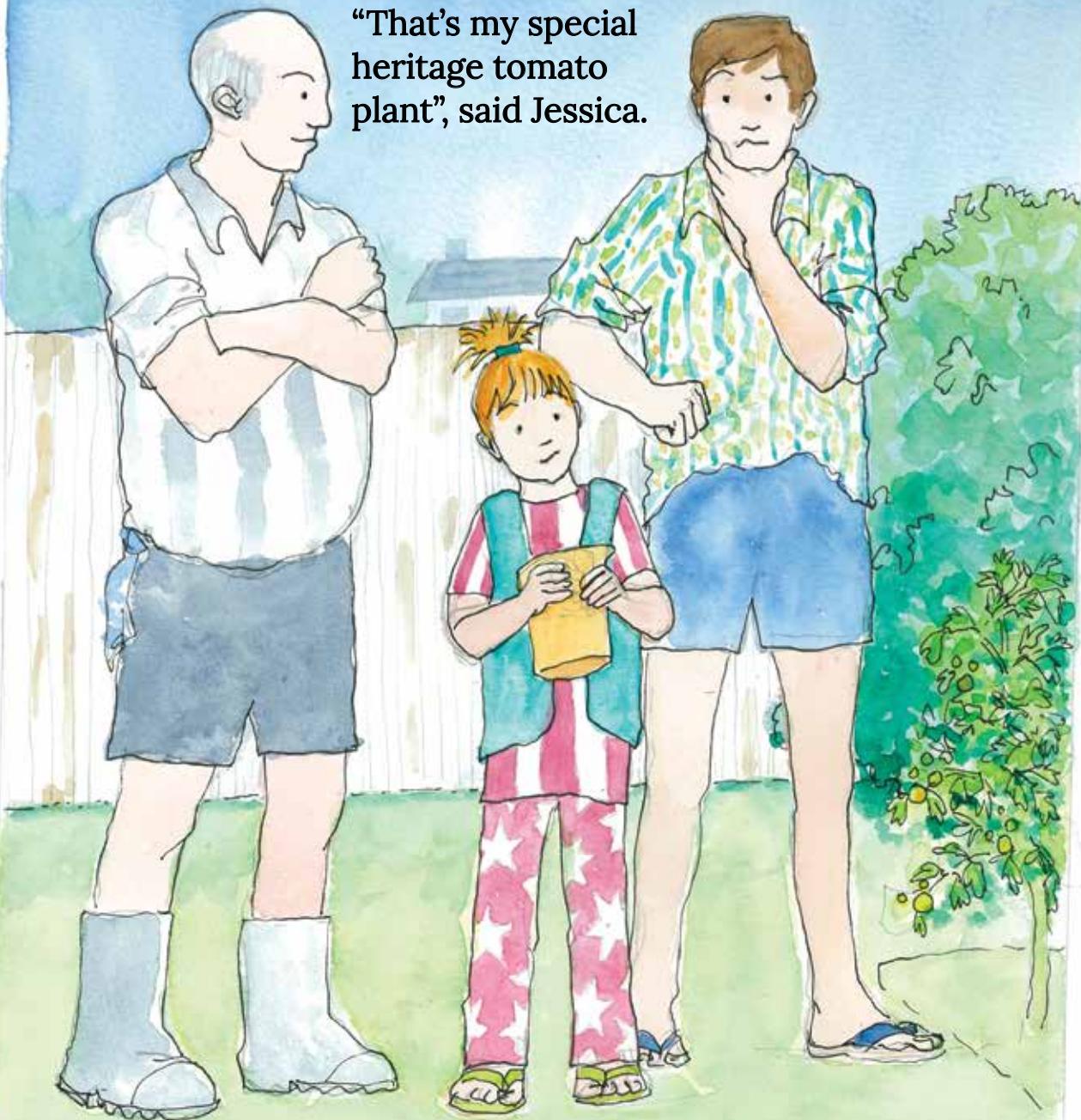
Mix the water, soap, garlic and pepper in the bucket. Let it sit for a few days. Pour the liquid through a sieve, into a spray bottle. Spray on your plants whenever you see leaves being chewed.



Tiny fruit appeared on the tomato plant. They were a very pale green and turned to yellow as they swelled.

One day their neighbour, Mr Burgess, saw Jessica's tomato plant. "What's that?" he asked.

"That's my special heritage tomato plant", said Jessica.



"The fruit's not a very good colour," said Mr Burgess. "It needs a good feed of 'RED-UP' to put some colour into the fruit."



That evening, Jessica spoke with her plant:

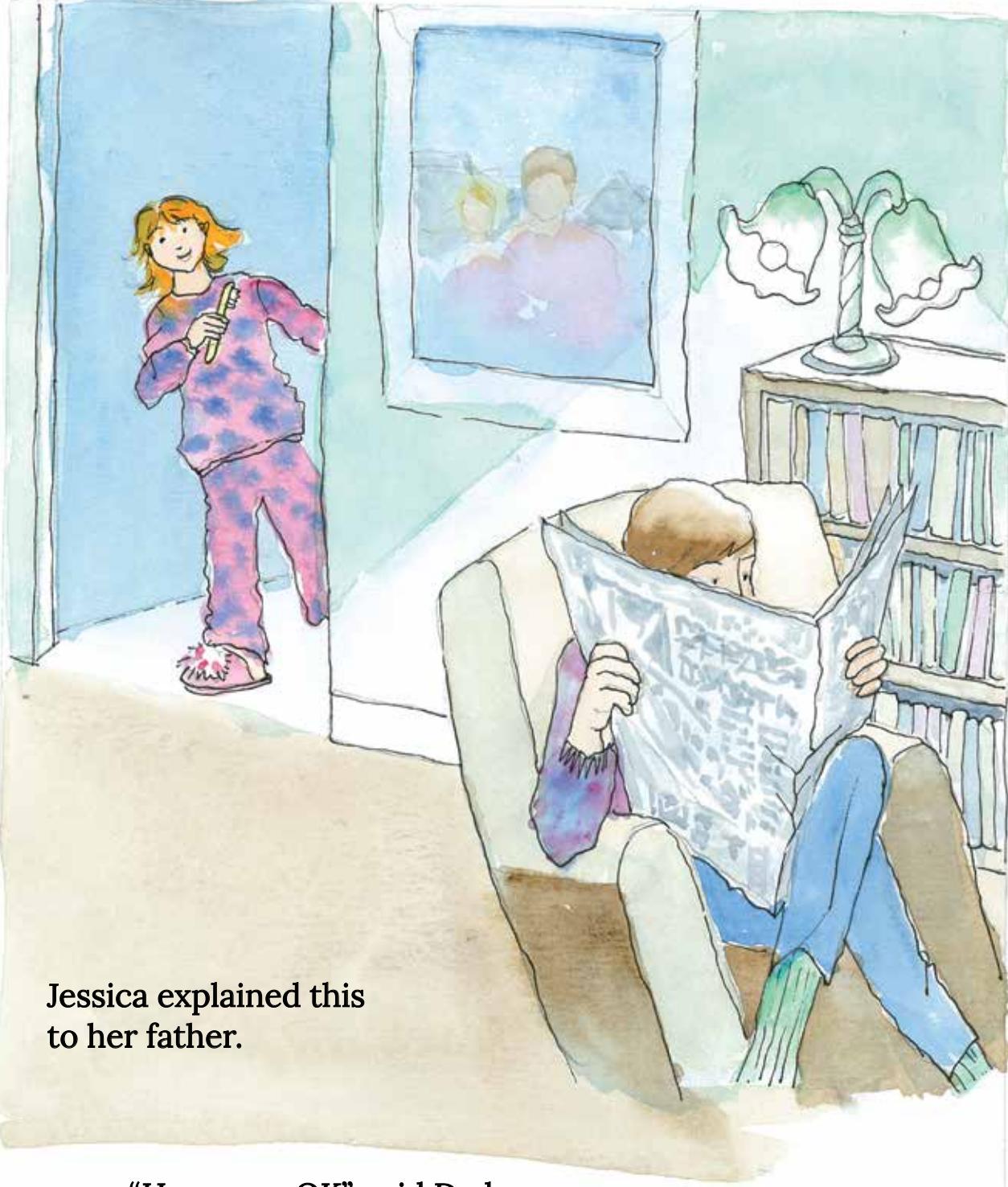
“Mr Burgess said there’s something wrong with you,” she said.

“Your fruit is the wrong colour. Do I need to give you some ‘RED-UP?’”

“My fruits will never be red” said the tomato plant. “They are meant to be golden-orange.”

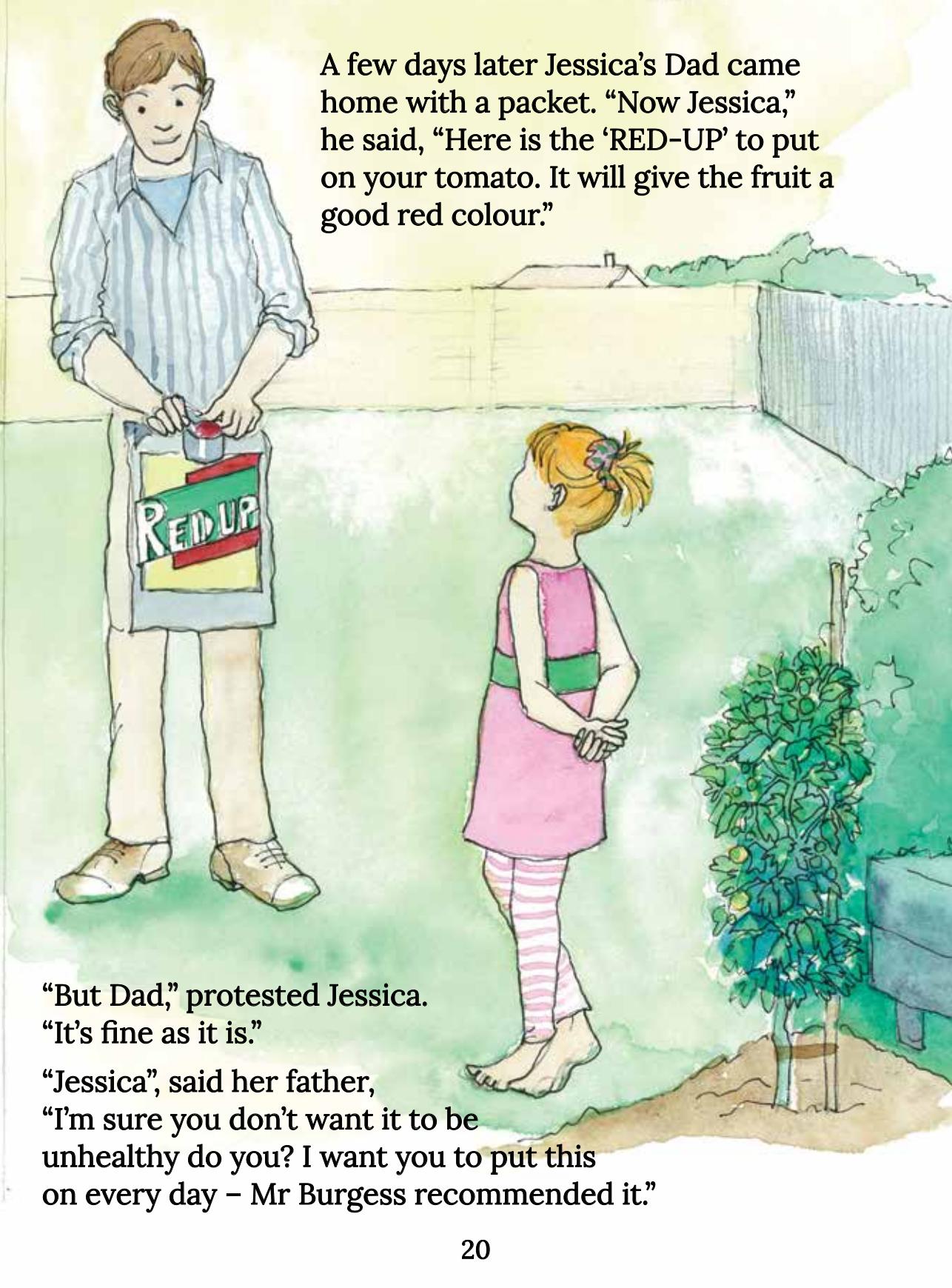
“But aren’t tomatoes meant to be red?” asked Jessica.

“No,” said the tomato. “Remember I am a heritage tomato. Most of us were golden once. But people decided to cross-breed us with the red tomatoes to change our colour. Only some of us were able to stay the original colour.”



Jessica explained this
to her father.

“Hmmm ... OK”, said Dad,
“but the ‘RED-UP’ won’t
do it any harm”.



A few days later Jessica's Dad came home with a packet. "Now Jessica," he said, "Here is the 'RED-UP' to put on your tomato. It will give the fruit a good red colour."

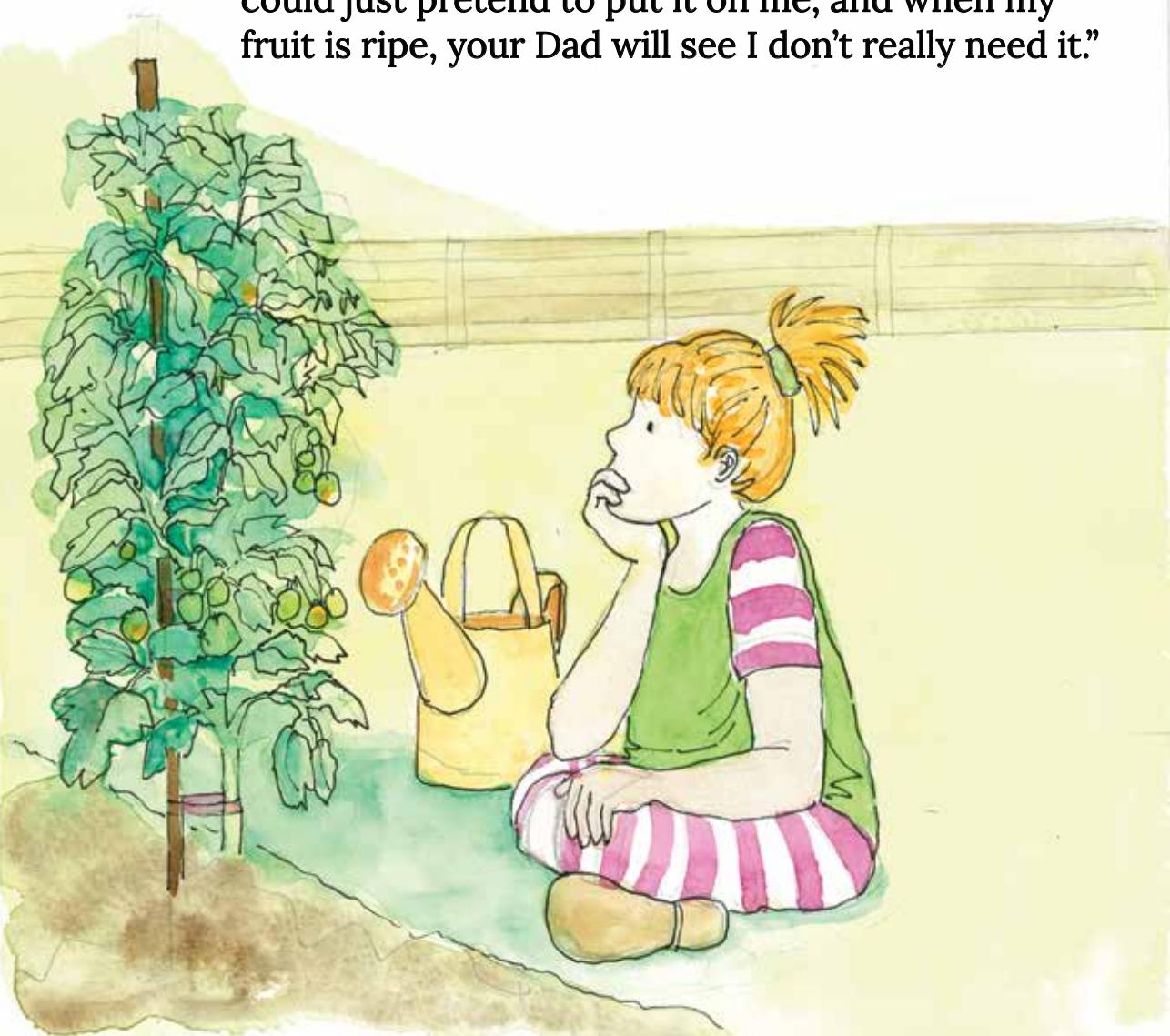


"But Dad," protested Jessica.
"It's fine as it is."

"Jessica", said her father,
"I'm sure you don't want it to be
unhealthy do you? I want you to put this
on every day - Mr Burgess recommended it."

Jessica went out to her plant the next morning. "I don't know what to do," she said sadly. "Dad wants me to put on this colouring stuff, and I don't want to."

"Can you give me a little more time?" asked the tomato plant. "My fruit is nearly ready to eat – you could just pretend to put it on me, and when my fruit is ripe, your Dad will see I don't really need it."



Jessica wanted to please her father, but she didn't want to harm the tomato plant. So, every day she took a little of the 'RED-UP' and sprinkled it on the soil far away from her plant.

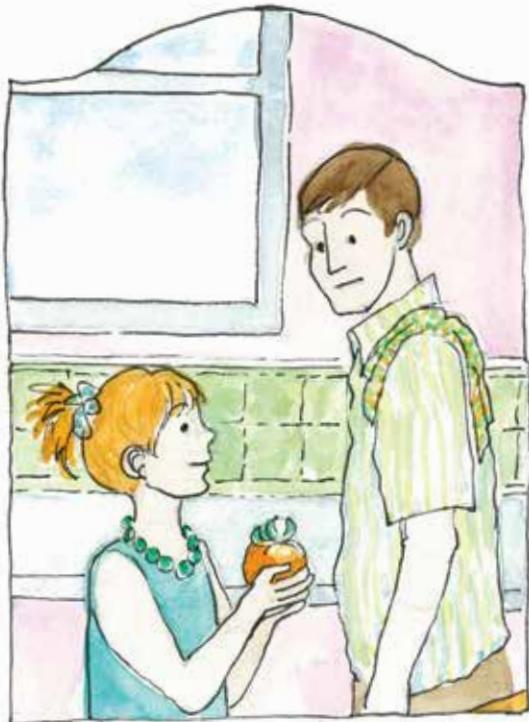


The golden fruits on the plant were very big now.

One morning the tomato announced:

“Today is the day you can pick one of my fruit.
The biggest one is ready.”

Jessica twisted it carefully off the vine. “Now it’s my turn to say thank you!” she said.



Jessica took the golden-orange tomato inside and showed it to her father.

“Wow!” he said,
“That’s a great size!
But it’s not red!”

Jessica sighed. “Dad,” she said, “I’m sorry – I couldn’t put that stuff on my plant.”

“Mmm, well, you’ve picked it too soon”, said her father.
“‘RED-UP’ would have made it a good colour. But if you leave the tomatoes on the plant a bit longer you’ll find the tomatoes will ripen up to a lovely red colour”.



Jessica felt sad.
“Dad, my tomato
plant has told me its
fruit is meant to be
golden-orange.”

“Well, maybe – but
let’s leave the fruit on
a bit longer and see
what happens”, said
her dad.





Jessica noticed the headline of the newspaper on the table.
Looking closer she read:

“NEW RESEARCH ON GOLDEN-ORANGE TOMATOES”

“Dad, Dad!” she called, **“look! There’s something here about our tomato!”**

GOLDEN/ORANGE TOMATOES BEST FOR HEALTH



The latest New Zealand research looking for the best tomatoes for health has uncovered rare heritage varieties that contain a different form of lycopene that is easily absorbed when eaten raw.

"Eating these golden/orange varieties should improve long term health outcomes" said Mark Christensen, research director for the Heritage Food Crops Research Trust.



Jessica's father read the article very carefully.

"Well, well, well," he said softly. "Sweetie, you were right all the time! I'm sorry I didn't listen to you. Your tomato plant actually is a golden-orange variety and that is very, very special. No wonder it needed to talk to you – you understood just how special it is. Let's go outside right now and have a chat with it."

Out in the garden the golden orbs glowed on the tomato plant.

"You're a gorgeous creature, aren't you" said Dad. "We're very grateful to have you at our place and we will enjoy telling other people about you – about your special qualities that we need to keep us healthy. Thank you!"

"And", said Jessica, "you are the best pet I've ever had!"



“You’re welcome” said the tomato plant.





SCIENTIFIC EXPLANATION

Lycopene is a carotenoid and phytonutrient found in tomatoes, pink grapefruit, watermelon and papaya. Numerous studies have shown that ingesting lycopene-rich foods can result in positive health benefits. Lycopene is a powerful antioxidant that may help protect against degenerative diseases by neutralising damaging free radicals in the body. Lycopene may help prevent DNA damage in the cells and therefore prevent cell death and allow better cell function. Furthermore, high levels of lycopene in the blood and fatty tissue correlate with reduced risk of cancer and heart disease. Lycopene can prevent the growth of cancer cells and new research suggests it may even help to kill cancer cells whilst protecting healthy cells. (<http://www.ncbi.nlm.nih.gov/pubmed/22718574>).

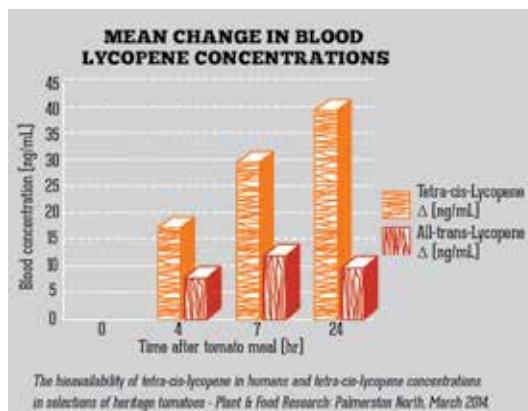
The human body cannot produce lycopene so it must be obtained from food sources. However, the lycopene present in modern red tomatoes is not easily absorbed by the human body. It needs to be absorbed through the intestinal wall and into the bloodstream so that it can be carried around the body to protect cells and essential fatty acids ("the good fats") against oxidation. The form of lycopene in red tomatoes is 'all-trans' lycopene and has a straight molecular structure. There is another form of lycopene, called 'tetra-cis' lycopene, found in a small number of rare and very special heritage tomato varieties that are golden, orange or tangerine in colour.

Not every tomato of these colours will contain this form of lycopene however. Research in the United States on 'Tangerine' tomatoes found that when cooked tomatoes (in the form of tomato sauce or tomato juice)^{1,2} were fed to individuals, the lycopene in the golden/orange* tomato sauce or juice (with the tetra-cis lycopene) was more efficiently absorbed and taken into the bloodstream than the lycopene in their red tomato comparisons.

Meanwhile in New Zealand, the Heritage Food Crops Research Trust had been researching tomatoes to try and find the best in the world for human health. They had obtained hundreds of varieties from around New Zealand and worldwide covering the full spectrum of tomatoes from white to black and a wide diversity of shapes and sizes. Dr Tony McGhie at Plant & Food Research in Palmerston North chemically analysed each variety for the Trust and in 2014 they undertook a human lycopene absorption trial to test the lycopene absorption of two high lycopene varieties: the red 'Rosalita' tomato and the golden/orange 'Moonglow' tomato. The tomatoes were eaten raw and the results showed conclusively the better absorption of the golden/orange form of lycopene. Researchers at the Heritage Food Crops Research Trust believe that greater absorption must lead to improved health benefits.

* Americans tend to refer to this colour as "tangerine"

- Burri BJ; Chapman MH; Neidlinger TR; Seo JS; Ishida BK. Tangerine tomatoes increase total and tetra-cis-lycopene isomer concentrations more than red tomatoes in healthy adult humans. *Int. J. Food Sci. Nutr.* 2009, 60, 1-16.
- Cooperstone JL; Ralston RA; Riedl KM; Haufe TC; Schweiggert RM; King SA; Timmers CD; Francis DM; Lesinski GB; Clinton SK; Schwartz SJ. Enhanced bioavailability of lycopene when consumed as cis-isomers from tangerine compared to red tomato juice, a randomized, cross-over clinical trial. *Molecular Nutrition & Food Research* Vol. 59, Issue 4, pages 658-669, April 2015.



SEED PLANTING INSTRUCTIONS

Plant seeds in trays sometime between early September and early November:

- Fill trays with seed-raising mix, place seeds about 3cm apart and cover them with a sprinkling of mix.
- As you plant each seed, send it your positive energy.
(see ‘The Energy of Intention’ below.)
- Place the trays in a warm position and keep them watered.
- When tiny tomato seedlings begin to emerge and their baby leaves appear (anywhere from 3 to 10 days), move the plants into brighter light conditions to keep their growth compact.
- When the second set of tomato leaves appear, transplant the seedlings into 10cm pots, gently lifting the roots with a dinner-fork and holding the plant by its leaves.
- Harden off the seedlings by placing them outdoors in direct sunlight, beginning with an hour a day and increasing outdoor exposure over several days.
- Transplant to the garden after the last frost.
- If you need more detailed instructions, look at
www.reneesgarden.com/articles/grow-tomato.htm

Open Source Research Project – ‘The Energy of Intention’

Just as the most important ingredient in preparing a meal is ‘love’, so it is with planting a seed. You influence the outcome of your actions through the energy of your thoughts.

We welcome you to experiment with these special tomato seeds by planting them with your most positive energy, and the intention to help the world by growing the best tomatoes for the health of the people who eat them.